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THE GIFT OF
Royal Geographical
Society



PROCEEDINGS
OF THE
GEOGRAPHICAL SOCIETY
OF
AUSTRALASIA:
SOUTH AUSTRALIAN BRANCH.

1ST SESSION, 1885-6.

EDITED BY
A. T. MAGAREY, Esq., AND J. W. JONES, Esq.,
HONORARY SECRETARIES.

VOL. I.

Adelaide:
E. SPILLER, GOVERNMENT PRINTER, NORTH-TERRACE.

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14

CONTENTS.

	PAGE.
Preliminary Meeting to establish a South Australian Branch of the Geographical Society of Australasia, and first General Meeting of founders ; Election of Officers	7
Second General Meeting, August 19th, 1885 ; Adoption of Constitution	17
Constitution and Rules '	21
Inaugural Meeting, October 22nd, 1885	31
Vice-President's Inaugural Address, with Illustrations	35
Third General Meeting, November 13th, 1885	101
Report of Sub-Committee, with Draft Federal Constitution	103
Officers and Members of the Society, S.A. Branch	108
Founders of S.A. Branch	109

PROCEEDINGS
OF THE
Geographical Society of Australia

1st SESSION, 1885-6.

SOUTH AUSTRALIAN BRANCH.

Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

PRELIMINARY MEETING.

On July 10th, 1885, a meeting was held in the Banqueting-room of the Town Hall, Adelaide, for the purpose of considering the advisableness of forming a South Australian Associated Branch of the Geographical Society of Australasia. The meeting had been convened by circular, issued by Messrs. A. T. Magarey and J. W. Jones (Conservator of Water), in which it was stated:—"The desirableness of promoting in South Australia an active interest in the Geographical Society of Australasia having been affirmed by the administrative council of the Society in Sydney, and also by the council of the Victorian Branch in Melbourne, the hon. secretary of the Victorian Branch (Mr. A. C. Macdonald) has specially brought the subject under the attention of several gentlemen in South Australia favorable to the advancement of geographical science. Having received assurances of the warmest interest in the matter, Mr. Macdonald has asked us to take the initiative," &c.

The Hon. S. J. Way (Chief Justice) presided, and there were present—Sir Henry Ayers, K.C.M.G. (President of the Legislative Council), Sir Samuel Davenport, Sir Thomas Elder, F.R.G.S., the Hons. H. Scott, R. A. Tarlton, G. W. Cotton, and D. Murray, M.L.C.'s, Messrs. E. T. Smith and F. E. H. W. Krichauff, M.P.'s, the Right Rev. Bishop Kennion, D.D., Very Rev. Archdeacon Farr, M.A., LL.D., the Mayor of Adelaide (Mr. W. Bunday), Colonel Egerton-Warburton, C.M.G.,

Messrs. S. Tomkinson, J.P., J. L. Bonython, J.P., J. F. Conigrave, J.P., W. Everard, J.P., T. Evans, jun., T. Gill, J. A. Hartley, B.A., B.Sc. (Inspector-General of Schools), C. Hope Harris, E. Holthouse, Jno. Mackillop, F.R.G.S., C. J. Sanders, W. H. Tietkens, F.R.G.S., W. B. Wilkinson, F.R.G.S., T. Worsnop, J.P. (Town Clerk), and F. S. Wallis, Rev. F. Williams, M.A., and Messrs. J. W. Jones and A. T. Magarey, acting hon. secretaries. Apologies for non-attendance were received from the Hon. R. D. Ross, M.P. (Speaker of the House of Assembly), and Messrs. J. Bagot, F. Basedow, and J. H. Symon, M.P.'s, G. W. Goyder (Surveyor-General), and W. Strawbridge.

Mr. J. W. JONES opened the proceedings by reading a telegram from Sir Edward Strickland (President of the Sydney Branch of the Geographical Society of Australasia), in which he stated—"Tell the meeting that the administrative council is delighted at the prospect of a South Australian Branch being at once formed. They wish it every success. As soon as definite news is received, a liberal supply of volumes of the Society's proceedings will be sent."

The CHIEF JUSTICE said—The influential attendance this afternoon indicates the continued interest of South Australia in geographical science. I think we may claim, although the Geographical Society of Australasia has not been founded in South Australia, that we have from the outset taken a very great interest in geographical science. There has been a very large expenditure on the part of the Government, and a great deal of enterprise on the part of our fellow-colonists and explorers in promoting geographical science in the most practical shape. There are several gentlemen here who will remember the dispatch of Mr. Eyre's expedition and of Captain Sturt's expedition, and later on the expeditions of Mr. Stuart, who is, I suppose, the ablest explorer we have ever had in Australasia. Had his literary skill equalled his practical ability as an explorer, he would stand on a pinnacle that no other Australian explorer had reached. Then of course we have had other expeditions. I see present among us one who made a most adventurous ride on the

camel's back to the western side of Australia from the centre of the colony. I take it that this wonderful expedition of Colonel Warburton is to be bracketed with the wonderful walk of Mr. Eyre along the coast of the Great Australian Bight, as the two most adventurous feats in Australian exploration. Then I think one feature of exploration in South Australia has been the public spirit manifested. We do not often hear now the name of Mr. James Chambers. The expeditions which went out under the conduct of Mr. Stuart were at his expense; and Major Warburton's memorable expedition to Western Australia was dispatched, not at the public cost, nor by means of subscriptions from the colonists at large, but at the cost of Sir Thomas Elder and Sir Walter Watson Hughes. (Applause.) We also know that not less than four expeditions were dispatched at the cost of Sir Thomas Elder, and to him belongs the credit of having introduced many years ago the camel, which furnished new possibilities, and opened up a new epoch altogether in South Australian exploration. And in this connection no one would like the name of Mr. Goyder to be overlooked. He has been a practical explorer himself, and he has furnished most valuable advice and assistance to every person wishing to advance geographical science in a practical manner. The Society which we have met to consider this afternoon had its initiation in Sydney. The Society was founded in June, 1883, and that there is nothing exclusive with regard to its constitution, I think, may be gathered from the fact that our Melbourne friends have joined the Society, after consideration of the whole subject. If there was no intercolonial jealousy to prevent that being done in Victoria, no jealous feeling of the kind will be manifested in South Australia. We shall all agree that there is work for the Society to do. If the Society does no more than methodise and make accessible the large stores of information that are distributed in the various Surveyor-Generals' offices in the different colonies, and in the hands of persons who have taken part in exploring expeditions, a very large step will be made towards the advancement of geographical science. A very large part of the map

of Australia is blank. I do not know how much, but Baron von Mueller, in addressing the Melbourne Branch, stated that one-half of Australia was still unexplored. We can see from the action of the Geographical Societies in Europe that they intend to leave to the Australians the work of carrying on exploration in the southern seas, particularly in New Guinea and the islands adjacent to Australia. There is one respect in which we shall all recognise the advantages of a Society of this kind. It will bring us into immediate communication with the Geographical Societies all over the world. There are some sixty Geographical Societies in Europe, which exchange their publications. Even the slow-going Portuguese colonies on the coast of Africa have established a Society. We remain in ignorance of a great deal that is going on in other parts of the world, and the Geographical Societies not being in communication with us fail to learn what has been done in Australia. A significant instance of this was mentioned at the meeting at Sydney when the foundation of this Society was determined upon. Some three years ago the secretary of the maps department of the Royal Geographical Society of London was paying a visit to Berlin, and there he saw a magnificent collection of Australian maps in the possession of Von Petermann, the celebrated German cartographer. He asked where they had been got. He found these publications could be obtained in Sydney; that they were published at the Government Printing Office in Sydney, and accordingly four years after they were published the Royal Geographical Society of London made an application for and became acquainted with these maps. Now, if there is so much ignorance with respect to Australia, we cannot be surprised that many of the maps which are published are so imperfect in respect of the information which we already possess, and that so little is known in different parts of the world with respect to these colonies. We propose to form here a branch of the Geographical Society of Australasia. We do not want a small struggling Society in each colonial capital. This is especially a work in which we require federation, and in which we can happily combine to

accomplish a great object. The Geographical Society of Australasia has already done a good deal of practical work. It has succeeded in interesting the Governments of the different colonies in the work of exploration. It has received a very liberal support from the Governments of New South Wales, Queensland, and Victoria; and it has already entered the field of practical research by dispatching an exploring expedition to New Guinea. I therefore think it desirable that South Australia should take some steps towards furthering geographical science; and this can be best accomplished by joining the Society which has been already established. (Applause.)

Mr. J. W. JONES gave the credit of initiating the movement to Mr. Macdonald, the Secretary of the Victorian Branch of the Society, who had lately been on a visit to Adelaide, and had contributed an interesting letter to the *Advertiser*, setting forth the advantages which would accrue from the formation of a South Australian Branch. Mr. Macdonald had also spoken with several gentlemen here on the subject, and asked them to undertake the preliminary work. Before pledging themselves to adopt the present constitution of the Society, however, he felt it would be necessary to obtain further information, and accordingly wired to the President of the New South Wales Branch of the Society, stating that he thought the existing constitution of the Society was unworkable. The President replied—"The constitution requires revision; it will be undertaken quickly. All branches will have the utmost possible independence. I congratulate you on the probable early formation of a South Australian Society." He had also communicated with Mr. Macdonald, the principal points of whose reply were as follows:—"Each branch is practically independent of all other branches. The founders' and members' subscriptions will be required by each branch to pay the local expenses, such as advertising, printing, &c. The Government grants and special donations for exploring parties will be expended under the direction of the Administrative Council and Exploration Committee of New South

Wales, subject, however, to the consent and approval of all other branches in existence. The South Australian Branch is not bound by the strict letter of the constitution as it is, because as it stands at present it is admittedly unworkable. The New South Wales Branch is alone responsible for the cost of the New Guinea Expedition, and for every other outlay and liability incurred in connection therewith." Mr. Jones then went through the various clauses of the constitution, and pointed out those which were unworkable and would require amendment.

Sir SAMUEL DAVENPORT moved—"That it is expedient to form in the Province of South Australia an Associated Branch of the Geographical Society of Australasia, subject, however, to an amendment of the constitution, whereby equal privileges will be enjoyed by each associated branch; and that the founders of this Society be now enrolled, provided that all who pay their subscription before December 31st be regarded as founders." He said that they would not bind themselves to the constitution of the Society as it was now placed before them. It was better that they should retain their independence, so that they might do what was right to themselves, acting always in co-operation with the other Societies with which they would be associated. The people of South Australia should heartily welcome a Society of this description. The Chief Justice had referred to the energy the colony had displayed. The colony was of independent birth, and we were called upon to make efforts in various directions which were of an independent character. With the exception of Western Australia, this was the only one of the Australian colonies which did not owe its origin to the mother colony of New South Wales. Tasmania and Victoria were each branches from the mother colony; but South Australia started without any connection of this kind, and the consequence was that we learned to rely upon our own resources, and to use our own discretion in the adoption of measures for the development of the country. What had been done in the past Australia was prepared to do in the future. It was, however, unquestionable that in many ways,

as, for instance, in the matter we have now under consideration, we owed a great deal to the advances of New South Wales and the other colonies. The glorious explorer Flinders received support and assistance from New South Wales, and he rendered most valuable service in the accurate survey of our coasts, the record of which would continue to have a place in history. To Captain Sturt, who was one of the officers of New South Wales, we owed the opening up of our interior, by his daring voyage of exploration down the River Murray. Later, too, when acting on behalf of this colony, he successfully carried out most important explorations in the far northern districts. With the exception of Western Australia, no colony had so large a territory of her own to explore as South Australia, and therefore we should promote the establishment of a Society of this kind. It was a Society whose work would be of an elevating character. It would have a beneficial effect upon the community, and it would advance the material interests of the colony. (Applause.)

Sir HENRY AYERS seconded the motion. He said it was expedient to form in this province a Geographical Society. The question of how they would be associated with the New South Wales Society would depend in a great measure upon the constitution as amended; but he apprehended that they would have also a constitution of their own. Their first duty would be to make themselves acquainted with South Australia, and having done that, to make themselves acquainted with the neighboring country, not only for their own information, but in order that knowledge might be disseminated far and wide. A lamentable ignorance existed in many parts of the world with regard to the geography of this great continent, and if it was merely in order to assist in dispelling this ignorance, he would cordially support the association. He hoped that really good working men would be appointed on the council.

The Right Reverend Bishop KENNION said he had the privilege of being a Fellow of the Royal Geographical Society for some years, and he took a great interest in the work which was likely to be accomplished in South

Australia. One of the great advantages of the Home Society was, he considered, that it disseminated abroad its information by means of its published proceedings, of the annual lecture delivered by the President, by the stimulus which it naturally afforded to geographical enterprise, and also by the excellent collection of books and maps on its premises. In forming a Society here it was very important that they should have some local habitation in which they could store their maps and such books as might be presented to them. He possessed a good many of the journals and reports of the Royal Geographical Society, and he would be glad to place them at their disposal if there was a place in which to put them. (Applause.) It was seldom they found anything in those journals and reports about Australia. If the result of this Society was to stimulate discovery here, it would not only be a great gain to those who lived here, but to all other Geographical Societies throughout the world. (Applause.)

The motion was carried, and it was also resolved to acknowledge the telegram from the President of the Society in Sydney, to reciprocate his good wishes, and to communicate the result of the meeting to him. The gentlemen present were enrolled as founders of the Society.

FIRST GENERAL MEETING.

The meeting then resolved itself into the first general meeting of the South Australian Branch of the Geographical Society of Australasia.

The following officers were elected:—Vice-President, Sir Samuel Davenport; Treasurer, T. Gill, Esq.; Hon. Secretaries, J. W. Jones, Esq., and A. T. Magarey, Esq. Provisional Council (with instructions to report to a general meeting) was appointed for three months, as follows:—Sir Thomas Elder, G. W. Goyder, Esq. (Surveyor-General), the

Hon. R. A. Tarlton, M.L.C., F. E. H. W. Krichauff, Esq., M.P., W. B. Wilkinson, Esq., C. H. Harris, Esq., with the Vice-President, the Treasurer, and the Hon. Secretaries as *ex officio* members.

The CHIEF JUSTICE expressed the hope that the annual meeting of the Geographical Society of Australasia would, as had been suggested, be held alternately in the capitals of the several colonies.

The meetings closed with votes of thanks to the Chief Justice and to the Hon. Secretaries.

SECOND GENERAL MEETING, AUGUST 19TH, 1885.

SIR SAMUEL DAVENPORT, Vice-President, in the chair.

The VICE-PRESIDENT, in reviewing the position of matters, said that in June, 1883, the Sydney Branch of the Geographical Society of Australasia was formed. In the year following a branch was formed in Melbourne, and this year Adelaide had started its branch. Communications had been received from Sir Edward Strickland, President of the Sydney Branch, and Mr. A. C. Macdonald, Hon. Secretary of the Melbourne Branch, both intimating that the constitution as drawn up at Sydney was open to review, and that each branch was at liberty to act independently within certain broad lines in drawing up its rules. The first meeting in connection with the formation of this branch had been held on July 10, when a Provisional Council was appointed. The Council had held four meetings in the Surveyor-General's (Mr. Goyder's) Office, and they were under much obligation to Mr. Goyder for the use of his room. As would be seen, the Council had compiled their report on liberal terms, and they now had the pleasure of submitting it. The Chairman then read the rules as drafted, dealing with the branch and its title.

Mr. J. L. BONYTHON said it had occurred to him that it might be well to enlarge the scope of the Society by making it Historical as well as Geographical. They would thus increase its usefulness and add to its attractiveness. This extension of the Society's aims could be made without in any way interfering with the objects of the association, and such action might prevent the needless multiplication of societies. The geographical and historical elements would not at all clash, as in a young colony such as this history and geography were to a great extent interwoven, and in compiling the one they must describe the other; but there was also much of historical interest which was not connected with geography. In Victoria an historical society

had lately been established, and in the New England States of America such Societies not only existed, but did much valuable work. The subject of local history was an important one, and if the work of collecting data were commenced at once, it would both simplify matters and prove advantageous in years to come.

Mr. T. GILL said the rules, as prepared by the Provisional Committee, provided for undertaking to some extent the work to which Mr. Bonython had referred. He quite agreed with the suggestion. The work could be undertaken if the name of the Society were changed. Societies with similarly combined objects had been very successful in England, and if they were to change the name of the association to the Geographical Institute, they could have several sections, which could be governed by separate and distinct councils. They could be called sections A, B, and C, each carrying on its operations separately, as was done in connection with the Royal Society. If the suggestion were carried out, and the two subjects taken up, he felt sure that the membership would be increased 100 per cent. At the present juncture the pioneers of the colony were rapidly passing away, and opportunities for obtaining information with reference to the early days were continually growing less.

The Hon. H. SCOTT, M.L.C., pointed out that they could not carry out the proposal without diverging from the object of the Geographical Society of Australasia. They had styled themselves the South Australian Branch of that Society, and it was hardly competent in them to alter the name. They had provided in their rules for the collection and publication of historical records of geographical interest, and of memoirs of notable men of Australasia, and that would give a great deal of room for obtaining historical information. If the branch was started under the auspices of the parent Society, it would be quite possible to raise the question again with better prospects.

The VICE-PRESIDENT thought it was too fundamental an alteration of the Society of which they styled themselves a branch. No doubt the carrying out of the object in view

was very desirable, and the line of study in one department would accelerate progress in the other, and the whole result would be more readily attained if it was arranged by one Society; but he doubted whether so fundamental a change could be introduced without a notice of motion and a communication with the parent Society. Inasmuch as they had adopted their own constitution, free from any trammels, except that they acted under the heading of the Geographical Society of Australasia, the proposal might be discussed and sent forward, and the feeling of the parent Society tested in regard to it. (Hear, hear.)

Mr. BONYTHON entirely sympathised with what had been said, and his only object was to prevent a multiplication of Societies. If the suggestion could be readily adopted, the Society would evoke greater interest, and they would have a section dealing exclusively with historical matters. A short time ago he received a letter from a Society in the State of Maine, U.S., asking for the reports of our Historical Society. Those who made the application had taken it for granted that in this colony a Society of the kind would have been founded long ago. As to the objects of the branch including the gathering of historical information on matters of geographical interest, he believed those words were not to be found in the list of objects mentioned in the Sydney Society's rules. He had no intention of bringing forward any motion.

The Hon. R. A. TARLTON, M.L.C., while sympathising with the suggestion as to the collection of general historical information, thought ample provision for historical work for the purposes of the Society was made in rule No. 2 of the constitution. He referred to what had been accomplished by the English Geographical Society, which started owing to the very scant attention paid to the subject by the Royal Society. He thought multiplication of objects would retard the progress of the important work in which they proposed to engage. The British nation owed to a very great extent the possession of Australia to the energy of the English Geographical Society. Sir Joseph Banks, who was

a member, was largely instrumental in the foundation of the first colony on these shores, which was carried out by Governor Phillip only two days prior to the arrival of a French expedition. Stanley, another member, took possession of New Zealand only thirteen hours before the arrival of a French vessel which had intended to take possession on behalf of France. The members of the local Society could best serve the interests of the colony by restricting their attention to the objects for which it had been called into existence.

After further brief discussion the rules were adopted unanimously.

At the VICE-PRESIDENT's suggestion, it was resolved to forward a copy of the constitution to the Council of the New South Wales Branch of the Society.

The VICE-PRESIDENT reported that the Sydney Society had presented them with 300 copies of the report of the party dispatched to explore New Guinea, and 100 copies of the proceedings of the Society, which were expected to arrive in the course of a few days.

On the motion of Mr. GOYDER (Surveyor-General), Sir Samuel Davenport, Sir T. Elder, and Mr. W. Everard were appointed trustees of the Society.

The VICE-PRESIDENT reported that the Government had consented to allow the Government Printer to publish the reports of the proceedings of the Society, on the condition that he was allowed to sell copies of the reports.

It was reported that the members' fees at present amounted to £53 11s., and there was a balance in hand of £45 6s. Fifty-one ordinary members and one honorary member had been elected.

CONSTITUTION AND RULES

OF THE

SOUTH AUSTRALIAN BRANCH

OF THE

Geographical Society of Australasia.

THE SOUTH AUSTRALIAN Branch of the Geographical Society of Australasia was founded at a meeting of gentlemen held at the Town Hall, Adelaide, on the 10th July, 1885.

The Society adopts for its general government the Constitution of the Geographical Society of Australasia; with the following Rules for its guidance :—

Title.

1. "The South Australian Branch of the Geographical Society of Australasia."

Objects.

2. The objects of the Society are—

- I. Scientific—The advancement of geographical science, the study of physical geography, and the exploration of Australasia, with the islands and seas adjacent thereto, to obtain information upon their physical features, fauna, flora, and geological formation. &c.
- II. Commercial—The study of commercial geography, the natural and artificial products, and the manufactures of various countries to promote commerce.
- III. Educational—The dissemination of knowledge of physical, commercial and political geography among all classes by means of illustrated public lectures and publications.

- iv. Historical—The collection and publication of historical records of geographical interest, and of memoirs of notable men of Australasia.
- v. The compilation, from reliable data, of the geography of Australasia.

Constitution.

(Articles 3, 4, 5, and 6 of Constitution.)

3. The Society shall consist of Ordinary, Corresponding, and Honorary Members.

- i. Any lady or gentleman may become an Ordinary Member, subject to election.
- ii. Persons of distinguished scientific attainments, who have promoted the objects of the Society, may be elected Corresponding Members.
- iii. Honorary Members shall be elected from among such persons as have rendered valuable service in the cause of geographical science.

Election and Privileges of Ordinary Members.

4. Every person desirous of admission as a Member of this Society shall be nominated by two Ordinary Members; the nomination (to be in Form 1 of the Appendix) to be delivered to the Secretaries in writing, and submitted to the Council at its next meeting. The Council may proceed to the election by show of hands.

5. Every person so elected shall, upon payment of his subscription, become a Member of this Society; and shall be presented by the Secretary with a Member's ticket, and a copy of the rules.

6. The Ordinary Members of the Society have the right to be present and vote at all meetings of the Society; to introduce two visitors at the general or ordinary meetings upon entering their names in the visitors' book: but no visitor shall speak unless specially invited to do so by the Chairman. Each Member to be entitled to receive a copy of the Society's official publications, and to have access to the library and other public rooms of the Society.

7. Any Member is eligible to be an officer, or Member of the Council of this Society.

8. The names of Members elected by the Council shall be announced to the Society by the Vice-President at its next ordinary meeting.

Election of Corresponding and Honorary Members.

9. The Corresponding and Honorary Members shall be elected by the Council under the same conditions as laid down in rule 4 for Ordinary Members, and such election shall be announced to the Society at the next ordinary meeting. They shall be exempted from the payment of fees, and may exercise the privileges of Ordinary Members; except that they shall not vote or hold office or seat on the Council.

Government by Council.

10. The government of the Society shall be vested in a Council consisting of a Vice-President, Honorary Treasurer, two Honorary Secretaries, and seven Ordinary Members of the Society, to be elected as hereinafter directed.

11. The Council shall have the management of the affairs and property of the Society.

Property.

12. The whole of the property and effects of the Society of what kind soever shall be vested in three Trustees for its use, who shall be chosen at a general meeting of the Society.

Election of Vice-President.

13. The Vice-President shall be elected by ballot at a general annual meeting of the Society, and shall hold office for three years, and shall be eligible for re-election. He shall preside at all meetings of the Society, and of the Council, at which he may be present.

Election of Honorary Treasurer and Honorary Secretaries.

14. The Honorary Treasurer and the two Honorary Secretaries shall be elected separately by ballot at a general annual meeting of the Society, and shall hold office for three years.

Election of Ordinary Members to the Council.

15. The election of Ordinary Members of Council shall be by ballot at a general annual meeting of the Society, and two at least shall then retire from office each year. The two Members who have attended the least number of meetings of the Council shall so retire, and shall not be eligible for re-election until the following general annual meeting.

16. The President or Members of the General or Administrative Council of New South Wales, or the Vice-President or Members of the Council of Victoria or other associated province, shall, when present in Adelaide, be admitted to the meetings of Council as Honorary Members.

Duties of the Council.

17. The Council shall meet once in every month for the transaction of business, at such time and place as may be appointed. Special meetings of the Council may be convened at any other time on the authority of the Vice-President, or of three Members of the Council. Due notice of all Council meetings to be sent to each Member.

18. The Council shall prepare an annual balance-sheet, a return of the attendances of Members, and a report on the operations of the Society for the preceding year, for presentation at the general annual meeting.

19. No business shall be transacted at any meeting of the Council unless five Members of the Council are present; in case of equality of votes, the chairman shall have an additional, or casting vote.

20. It shall be the duty of the Council to decide on the papers to be read at the monthly meetings, and to determine as to their publication, in whole, or in part.

21. Any Member of Council personally interested in a question before the Council shall, if requested to do so by the Chairman, withdraw during its consideration.

22. Any Member of Council absenting himself from three consecutive ordinary meetings of Council, without satisfactory explanation, shall be considered to have vacated office.

23. If, in the interval between two annual meetings, any vacancy in the Council occur, as in the last preceding clause, or from any other reason, the Council may appoint some Member of the Society to temporarily fill such vacancy until it is filled by election at the general annual meeting.

Duties of the Honorary Treasurer.

24. The Treasurer shall have special charge of all moneys and accounts, and shall see to the collecting of all moneys due to the Society, and shall submit, quarterly, to the Council a list of the names of such Members as shall be in arrears with their subscrip-

tions. He shall pay all moneys received into a bank account to the credit of "The South Australian Branch of the Geographical Society of Australasia."

25. All accounts due by the Society shall be approved by the Council before being paid, and all payments shall be by cheque signed by the Vice-President or the Treasurer, and countersigned by one of the Honorary Secretaries.

26. The Treasurer shall prepare an annual statement of receipts and disbursements; to be audited by Auditors appointed at the preceding general annual meeting.

27. This statement shall be submitted to the Council at its meeting prior to the general annual meeting.

Duties of the Honorary Secretaries.

28. An Honorary Secretary shall attend and take minutes of the proceedings of the Society and of the Council respectively, and see that all such minutes are entered in the several minute-books. The Honorary Secretaries shall keep a complete list of the Members of the Society, with the name and address of each accurately set forth; they shall conduct all correspondence and transact all the routine business; and shall have charge of all the property, books, maps, papers, &c., and shall see that the same are properly recorded and catalogued.

Fees.

29. Ordinary Members shall subscribe £1 1s. per annum, payable in advance to the Hon. Treasurer, on or before the first day of the session.

30. A Member may at any time compound for future annual contributions by payment of the sum of £10 10s.

31. Members elected during the second half of the session (excepting the first session) shall pay half the usual fee for that year. No Member shall be responsible for any expenditure beyond his annual subscription.

32. Any Annual Subscriber who has not paid the year's contribution during the currency of the year, shall be liable to have his name removed by the Council from the list of Members of the Society: Provided always that written application for the same shall first have been made by or on behalf of the Treasurer: And provided, also, that the Council shall have power to restore the defaulter's name at his request, and after payment of arrears.

Session.

(Article 13 of Constitution.)

33. Session shall commence in the month of May, and last six calendar months.

Meetings.

34. The meetings of the Society shall be—

- I. General annual meeting.
- II. Ordinary monthly meeting.
- III. Special general meeting.

35. The general annual meeting shall be held at the commencement of every annual session in the month of May, on a day to be fixed by the Council, to receive the Vice-President's address and the report of the Council on the state of the Society, and to discuss such subjects as may be brought forward relative to the affairs of the Society; and to make the elections for the ensuing year. If after the lapse of fifteen minutes less than ten Members are present, it shall not be lawful for the meeting to proceed to business, except for the purpose of adjournment, and the meeting shall stand adjourned until a day and time then resolved upon.

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- I. The reading and confirming the minutes of last meeting.
- II. The Secretary shall announce any donations made to the Society since their last meeting, and read any special communications.
- III. The Chairman's reports or statements from the Council.
- IV. Motions to be considered and notices of motion for the next meeting to be read.
- V. The consideration of any special subject which Members may desire to bring forward, provided it be approved by the Chairman.
- VI. Any paper or subject notified in the circular shall then be read.

37. Except as above provided, no paper shall be read at any meeting which has not been notified to and approved by the Council; and every paper read before the Society shall be the

property thereof, and immediately after it has been read, shall be delivered to one of the Secretaries.

38. A special general meeting shall be called by the Council, when considered by them necessary, or when required by the requisition in writing of any ten Members to do so; the requisition to specify (in the form of a resolution) the purpose for which the meeting is required to be called; and at the meeting the discussion shall be confined to the subjects mentioned in the notice convening such meeting. Ten Members to form a quorum.

39. All meetings of the Society shall be convened by notice, written or printed, sent by the Secretaries to every Member resident in the colony, at least seven days before date fixed for meeting. The circular shall state as far as convenient the subjects to be brought before the meeting.

40. The Vice-President shall take the chair at all meetings of the Society; or, in event of his absence, Members present shall elect a Chairman, being a Member of Council, if such be present.

Intercolonial Meetings.

41. The Council may appoint a Member, or Members, to attend intercolonial general meetings when deemed necessary.

Retirement of Members.

42. Any Member may, on payment of all arrears of his annual contribution, withdraw from the Society, by signifying his wish to do so by letter under his own hand, addressed to one of the Secretaries. Such Member shall, however, be liable to the contribution of the year in which he signifies his wish to withdraw, and shall also continue liable for the annual contribution until he shall have returned all books, or other property, borrowed by him of the Society; or shall have made full compensation for the same, if lost or not forthcoming. Should there appear cause in the opinion of the Council to require the retirement from the Society of any Member, a special general meeting shall be called by the Council for that purpose; and if three-fourths of those voting agree by ballot that such Member shall retire, the Chairman shall declare the same accordingly; whereupon the name of such person shall be erased from the list of Members.

Archives.

43. The archives of this Society shall be kept in Adelaide.

Annual Report.

44. An annual report of this Society shall be published, and a copy transmitted to the Honorary Secretaries at Sydney for insertion in the annual Proceedings of the Society.

Alteration of Rules.

45. Any alterations of the rules of this Society shall not be considered, unless a written notice of motion, signed by not less than five Members, be given at a general annual meeting of the Society, and thereupon such motion may be brought forward at the next general annual meeting; or, if thought desirable, a special meeting may be convened before such general annual meeting to consider the resolution; and any resolution passed at such special meeting altering or repealing the rules shall be in force until the general annual meeting next following, and, if not then confirmed, shall thereafter be held void and of no effect.

By-Laws.

46. The Council shall have power to make By-laws for the conduct of its business and the business of the Society generally: Provided no such By-laws shall be repugnant to the objects of the Society, or to any rules made by the Society at any of its general meetings.

BY-LAWS RELATING TO COMMUNICATIONS TO THE SOCIETY.

1. Every paper which it is proposed to communicate to the Society shall be forwarded to one of the Hon. Secretaries for the approval of the Council.

2. The Council may permit a paper written by a non-member to be read, if communicated through a Member.

3. In the absence of the authors, papers may be read by any Member of the Society appointed by the Chairman or nominated by the author.

4. No paper or communication read before the Society shall be published without the consent of the Council.

5. The Council shall decide, not later than at its meeting next following the reading of a paper, whether it shall be printed in the proceedings; and if not, such paper shall be returned, if desired, to the author.

6. All communications intended for publication by the Society shall be clearly and legibly written on one side of the paper only, with proper references, and in all respects in fit condition for being at once placed in the printer's hands.

7. In order to ensure a correct report, the Council request that the paper shall be accompanied by a short abstract for newspaper publication.

8. The author of any paper which the Council has decided to publish will be presented with twenty copies; and he shall be permitted to have extra copies printed, on making application to the Hon. Secretaries, and on paying the cost of such copies.

9. A proof corrected by the MS. shall be submitted to the author for revision.

A P P E N D I X.

FORM No. 1.

THE GEOGRAPHICAL SOCIETY OF AUSTRALASIA: SOUTH AUSTRALIAN BRANCH.

Certificate of a Candidate for Election.

Name _____

Qualification or Occupation _____

Address _____

being desirous of admission into the South Australian Branch of the Geographical Society of Australasia, we, the undersigned members of the Society, propose and recommend him as a proper person to become a member thereof.

Dated this _____ day of _____ 188

INAUGURAL MEETING.

THE Inaugural Meeting of the South Australian Branch of the Geographical Society of Australasia was held at the Town Hall, Adelaide, on Thursday evening, October 22nd, 1885.

His Excellency the Governor (Sir W. C. F. ROBINSON, K.C.M.G.), Patron of the Society, presided over a very large audience.

The meeting opened with the National Anthem, rendered on the organ by Professor Ives, and a capital portrait of Her Majesty was shown by an oxy-hydrogen lantern.

HIS EXCELLENCY said he most heartily congratulated the President and Council of this branch of the Geographical Society of Australasia on having brought together that evening so numerous and brilliant an audience. As an old Fellow of the Royal Geographical Society in London, he had attended many of their meetings, both ordinary and annual, and he had never seen at any of those meetings a better or more representative gathering than that now before him. He was not sanguine enough to expect that even the annual meetings of the branch would be so largely attended as the meeting that evening. But he thought he was right in drawing a favorable augury for the future success of the Society in this colony, and that those present would not allow it to languish, but would support it to the utmost of their powers. His duty that evening was a very simple one. That was to introduce to them Sir Samuel Davenport, the President, who was to deliver the Inaugural Address. He needed not to remind anyone there of the many and varied services which Sir Samuel had rendered to his adopted home, South Australia. Whether in the encouragement of industries suitable to the soil and climate, or by the words of advice which he had addressed on various occasions to the people, or by his example as a colonist, he had placed South Australia under a deep debt of gratitude to him. As President of the Commission appointed to carry out the representation of the colony in London at the forthcoming Indian and Colonial Exhibition, he (the Governor) felt particularly

grateful to Sir Samuel Davenport for having undertaken the duties of a Commissioner and a representative of the colony on that occasion. He felt that there was no one so well able to bring to the notice of the English public our varied resources, and no one who would be likely to enter into the work with such zeal as he. Therefore, he took this opportunity of publicly thanking him for accepting the duties of a Commissioner, which he was sure would be discharged with great credit to himself and the colony. What the Geographical Society of England had done for geographical science in that country it was hoped that the similar Society in these colonies would do for this portion of the Empire. It was said by some that Australia was already fully explored, and that there was no need for the establishment of a branch—he was going to say of the Royal—Geographical Society. What he had termed it by a slip of the tongue would, he hoped, soon be an accomplished fact; and that the Society would soon be able to call itself “Royal,” an honor which he was sure it would deserve. In a paper read before the Victorian Branch of the Society, Mr. A. C. Macdonald pointed out that such a Society would doubtless prove of the greatest utility in collecting and distributing results, and in organizing efforts at exploration in order that the fullest benefit might be derived from them. If this Society carried out what he believed to be its chief aim and object, it would be furthering the extent of geographical science, as pointed out by Mr. Macdonald. They would do a good work in preserving memorials of the men who risked—and many of them lost—their lives in exploring the vast tract of desert country in Australia. When, half a century ago, Eyre made his perilous journey from South Australia to Albany, he had no idea that, forty years later, the country he crossed would be covered with flourishing sheep farms, and the spots where many of his companions lost their lives would be the sites of telegraph stations. Even, later on, Forrest, from Western Australia, and other explorers, when traversing the desert country between the two colonies, could have little idea that in a few years all the Australian colonies

would be striving to bind closely together their legislative functions, and lay the foundation of still greater prosperity. No doubt the advance of prosperity would be greatly aided by this branch of the Geographical Society, and this reason alone would have given him great pleasure, both in consenting to take the position of Patron of the Society and of being present that evening. In the paper of that morning they had seen that the Government Resident of the Northern Territory had discovered, not far from Palmerston, relics of the great explorer Stuart, and he regarded it as a most happy circumstance that this discovery should have been made on the occasion of the Inauguration of the Society. He would not go into any further detail that evening, as he hoped upon some future ordinary meeting of the Society to read a paper bearing upon geographical science in Australia. He had great pleasure, therefore, in calling on Sir Samuel Davenport to deliver the Inaugural Address.

SIR SAMUEL DAVENPORT then delivered the Inaugural Address, which was illustrated by a series of views of Australian scenery and portraits of explorers, shown by the oxy-hydrogen lantern. [For the Address, *see* page 35.]

On the conclusion of the Address,

The BISHOP OF ADELAIDE (the Right Rev. Dr. Kennion) proposed—"That this meeting heartily welcomes the advent of the South Australian Branch of the Geographical Society of Australasia, and pledges itself to support and advance the development of the Society as a public institution of the colony." After the extremely interesting lecture which they had been listening to, and the admirable remarks of His Excellency on the subject, he was sure there was very little left for him to say. There was nothing better which could be adduced in justification of the Society than the fact that Sir Samuel Davenport had consented to act as President, and this would be a sufficient guarantee that it would be well worked in the future. He would content himself with moving the resolution, and he most earnestly hoped that all those present would join in helping the promotion of geographical science.

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would remark, in passing, is that the accumulated incidents of Australian discovery constitute a great store on which to draw for frequent future happy and instructive evening gatherings. It is to the young people of our colony we are specially anxious to make the study of Australian Geography attractive.

A prominent feature of the British character has been its power of subduing the earth by discovery and by occupation; and many proofs show, beyond a doubt, that this faculty is retained and markedly developed in the Australian-born branch of our race.

If the matter of this paper and its attendant scenic illustrations should have the good fortune to interest you, much indeed is due to the valuable assistance given by Mr. Goyder (the Surveyor-General) and his staff—Mr. Crawford and Mr. C. Hope Harris. Much also is due to Mr. Spiller, Government Printer, for transparent photography; and much, truly, to Mr. Shakespeare's gratuitous display of them through this lime light.

The general arrangements have been devotedly carried out by the Honorary Secretaries, Messrs. J. W. Jones and A. T. Magarey; whilst the Honorary Treasurer, Mr. Thomas Gill (if not yet overburdened with funds), is enviously wealthy in Australian plans and publications, as to which he has most kindly acted as my banker, placing me in the very paradise of material happiness, namely, to draw on him to any amount.

INAUGURAL ADDRESS.

THE Science of Geography is the result of human inquiry into all that affects the nature and condition of the earth we dwell on, and of the various existences to whose being the Great Creator of all things has made it subservient ; and, since the earth is the theatre whereon our own lives begin, and spend their little day and end, we, as intellectual beings, cannot but feel deeply interested in the acquisition of the fullest knowledge of it.

A knowledge may be acquired and lost. If acquired by one man, its extent will be limited. He may retain it on his own memory, or may, further, have imparted it to his neighbors ; but if it has not been engraved, or written, or printed, and the record preserved, its existence perishes with those who possessed it.

Thus is it manifest that two things at least are essential to the due promotion of geographical science ; namely, to gather in to some central store the discoveries of all observers ; and to secure their permanent record for the common good of mankind.

In the life of nations, as of man, the hour arrives which gives birth to a new duty, when new functions have to be set in motion, some to be followed by results of corresponding importance.

Antecedent to that hour, it will be found that the materials essential to its development have accumulated ; it may be silently and unobserved, yet surely have they come ; and now the darkness which shrouded their being is dissipated by the dawn of advancing life, bursting on our vision, and demanding attention.

Such—in the opinion of the promoters of the movement we are summoned here this evening to inaugurate—is this moment of our national life, when we are called to found amongst us a habitation and a name for Geographical Science as one of our most important and vital institutions ; and we feel justified in asking and in believing you will welcome its birth amongst

us, and, by becoming members, both assist its nursing into a matured development, and share the profits which are its natural fruits—namely, intellectual pleasure, educational advancement, the acquisition of honor and rank with kindred associations of the old and other nations of the globe, the investigation and discovery to our own knowledge and advantage of the features and natural resources of our own territory, welcoming and facilitating in every way in our power corresponding labors of adjoining colonies and countries; and, in fine, co-operating with that now numerous and eminent class of working men in the world, who are the honored instruments in the hands of a benign Providence in revealing the rich treasures of creation, promotive of the employment, industry, commerce, wealth, happiness, and peace of the human race.

If on the people of any country the founding an institution for the advancement of geographical knowledge in the broad sense above indicated has claims for support, surely it will be felt to be most specially attractive, as well as of the highest material importance, to denizens like ourselves of a new and practically boundless, but yet imperfectly known territory, such as we now possess; and, naturally, our chief efforts will be directed to those portions of the earth in closest contact with us.

It is currently an accepted dogma that a large landed proprietor is a man of wealth. Are we a people of wealth in proportion to our landed estate? If not, why not? is a vital question in a material sense; and such a question is one of the objects a geographical society seeks to solve. There is a state of being, poor though in reality, abounding in wealth. Such a position the aborigines of Victoria held, as demonstrated to the extent of the development of a higher intelligence within a few years. The £100,000,000 of gold raised by Victorians since May, 1851, had been the property of the native races of the country, only they knew it not; or, knowing its existence, were ignorant of its having any value.

Whilst the material advantages expected or derivable from geographical science have doubtless proved the mainspring of

most enterprises undertaken in its pursuit, the acquisition of knowledge of the physical features and natural productions of the earth; of the branches of the human family inhabiting it, and of their manners and customs and languages and life; the mineral, vegetable, and animal world existing in their locality; their climatic condition; their mountains and plains; their river life and seas; their winds and currents; the nature of the heavens over them, and of the sea beds beneath; all creation, organic and inorganic; of their locality and the laws which these obeyed—all combine to claim our attention and promise rich rewards to inquirers.

Hence, in fact, the pleasures of knowledge acquired, and its material advantages, go hand in hand to lure us on to the advancement of geographical science.

In truth, that we are here now in this hall in Australia, with all that surrounds us of value in nature or social and domestic comfort, is the fruit of a developed geography.

It will be of interest, and not inappropriate, to dwell a moment upon this fact. Our own geographical position is, to-day, a vantage ground on which we may stand to view the question.

The date palm, the cocoanut, and other members of their class of plants, build up their stems on the accumulating bases of their former leaves; and so the geographic incidents of the past, dating since first adventurous navigators ploughed unknown seas, in search of knowledge of what this portion of the globe might consist, have accumulated under us an historic basis of the greatest interest, and formed for us a platform of vision, for our service to-day, commanding our admiration for the science of the past, and urging us to promote its future development.

Then, in addition to what has heretofore formed a generally diffused public knowledge, there exists among us much altogether unknown outside very narrow limits—to be found, perhaps, in printed memoranda of ephemeral being, or of more substantial publications, such as Parliamentary Papers; in private diaries, or unrecorded, save in the memories of the adventurers; and these are dispersed, and not as available to

public inquiry, as if there existed a central receptacle, where they all might be gathered in, classified, ranged in order, and made to contribute their quota to the one edifice of geographical knowledge—a public institution—for all time.

In what Europeans called the “Ancient World,” after the Greeks had formed their empire, and the Romans theirs—the relative areas of which did not materially differ, Greece having grown eastward into Asia, whilst Rome went westward to the shores of the Atlantic—the subsidence of empires resolved itself into distinct and separate nationalities, of proportionate limited dimensions, and the infant state of the science and means of navigation alone sufficed to narrow the confines of geographical knowledge.

The time when European nations first bethought them of inquiry into the possible existence of unknown lands in this portion of the globe is not so remote as to be difficult of grasp. The lives of some of us joined to those of our great-grandfathers would cover one-third of the intervening space—six other average lives would link us to the date.

For over a century, antecedently, some nations of Europe had been greatly aroused to engage in maritime adventures, specially the Portuguese, the Spaniards, and the Dutch. Columbus, by close study of geography and navigation (having gained a knowledge of the figure of the earth superior to the current notions of the age he lived in), had concluded that another continent than that of Europe existed, in order that the terraqueous globe might be properly balanced, and the land and seas proportioned to each other. The Senate of Genoa, his native city, before which body he had laid his scheme, and offered his services to prove its truth, rejected his proposals as a chimerical dream. It met the same fate at the Courts of Portugal, Spain, and England. At length the Court of Spain fitted out a squadron of three small vessels, of which Columbus was made admiral; and, in 1492, he discovered the Bahama Isles, with those of Cuba and Hispaniola; and returned to Spain. In a second voyage he discovered many more of the West Indian Isles; and in the third, begun August, 1498, he attained the great object of his

ambition—discovering the whole sea-coast line of South America (4,100 miles), from the Orinoco River to Cape Horn. His grand discoveries fired the enthusiastic desire for wealth of European nations.

In 1500, the Portuguese admiral, Cabral, commanding thirteen ships, with 1,200 men, destined for the East Indies, *via* the Cape of Good Hope, having been driven by adverse weather out of his course, accidentally came on the southern division of the western hemisphere, since called Brazil, and took possession of it in the name of his king. In 1519, Spaniards, under Cortez, landed at Vera Cruz, and discovered Mexico. In 1531, three adventurers of Spain (Pizarro, Amalgro, and a priest, Lueques), landing on the Isthmus of Panama, and proceeding south, discovered the rich and populous districts of Quito and Peru; and, shortly, nearly the whole of South America was assumed by Portugal and Spain.

That these revelations of a new world, and the thirst for territory, wealth, and commerce they created, should stimulate national ambition, and call into action brave and able seaman, was but natural; and thus now the Indian Ocean was invaded by European ships, its possessions sought and gained—a spirit of jealous competition imposing secrecy in discoveries. Spain, *via* Cape Horn; the Portuguese and Dutch, *via* the Cape of Good Hope—marching onward in the struggle search.

Thus the coasts of Malabar, the country of Malacca, and the Molucca or Spice Islands were acquired by Portugal; the Philippine Isles and part of New Guinea by Spain; Java and adjoining countries by the Dutch; and rich commerce flowed from these possessions.

Meanwhile Australia lay a blank to the civilised world; not long, however, to remain so, in the face and now near neighborhood of eager, ambitious, and daring competitive nations.

Perhaps from the Chinese and Malays, who in those days, as in ours, may have sought the trepang on the north shores of Australia, the first hints of a yet remaining southern continent

reached the ears of these adventurous nations, who, holding their possessions in the East Indian Archipelago as described, had established new starting-points for advancing discoveries. Anyhow, before the year 1542, there existed maps, representing a "Great south land," south of Java, and called Jave la Grande, or Great Java.

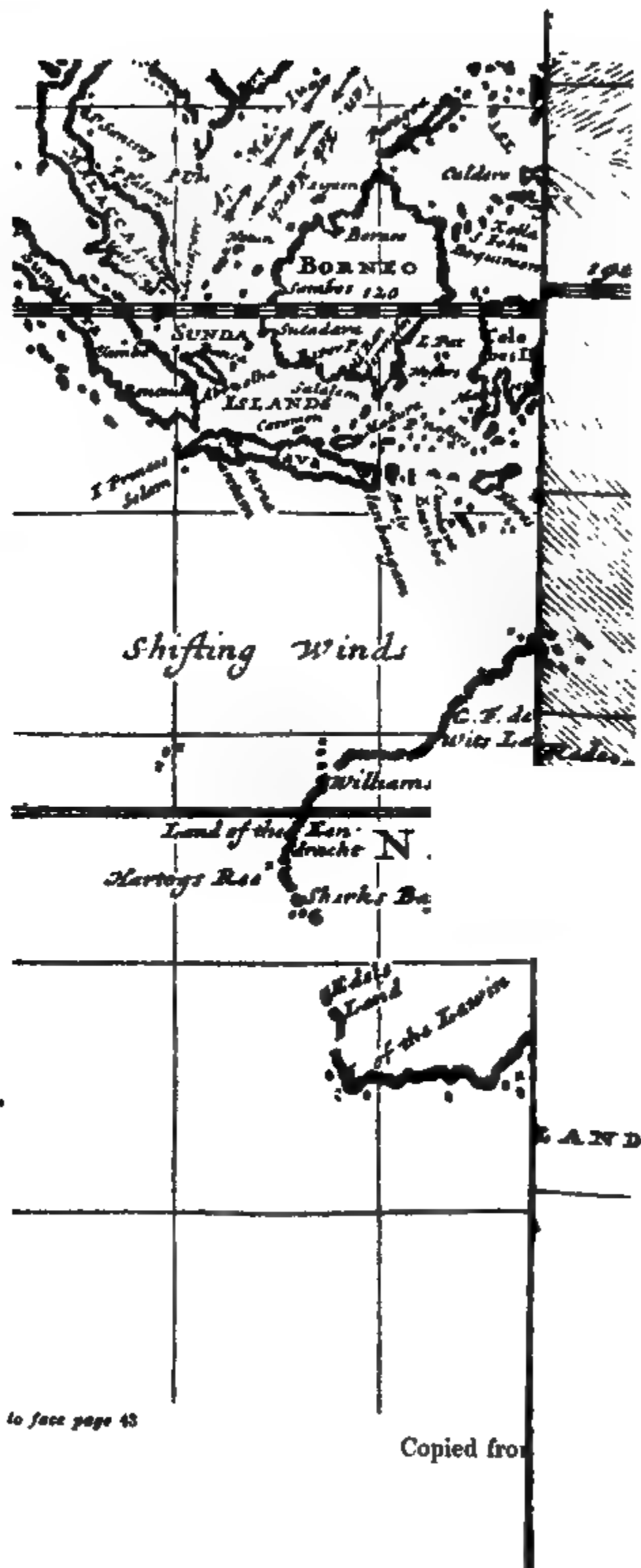
The earliest of these maps was presented to the British Museum by Sir Joseph Banks, and formerly belonged to an Earl of Oxford. Two others, in one volume, dated 1542, also in the British Museum, had been presented to Henry VIII. by one Jean Rotz. The names in these maps are chiefly Portuguese, leading to the inference that they had been the first of European nations to discover Australia.

In 1567 a Spaniard, Alvaro de Mendana, in a voyage from Callao, discovered the Solomon Isles; and again, in 1595, the Marquesas and Queen Caroline Isles. In 1602 the Dutch East Indian Company was formed, and three years after (1605) dispatched from Bantam the yacht *Duyphen* (Dove) to explore New Guinea. She proceeded as far as Cape Keer-Weer (or Turn-again), in the Gulf of Carpentaria, where some of the crew landing were killed by the natives. In the same year (1605), the Portuguese, Luis Vaez de Torres, left Callao, reached the New Hebrides, and, continuing westward, discovered the straits severing Australia from New Guinea (since called Torres Straits), and passed through them. This fact was unknown to Captain Cook, who, when first passing through the straits in 1770, called them after the name of his ship—the Endeavour Straits.

In 1616 a Dutchman (Dirk Hartog), on a voyage from Holland to India, saw and landed on the north-west coast of Australia, at Shark's Bay, and named an island after himself. He left there, on shore, a record of his visit on a tin plate, found eighty years afterwards by a Dutch navigator—Vlaming, who also left a plate nailed to a post with Hartog's. In 1803 both these plates were found by Baudin's officers. In 1838 they had disappeared, as recorded by Lieutenant, now Sir George, Grey, who then explored in that district.

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In 1618, to a Dutch captain, named Carpenter, the discovery of the Gulf of Carpentaria is assigned. It was a great fishing-bed for the seaslug, or bech-de-la-mer, or trepang, and so frequented by the Chinese and Malays. Its coast extends 1,200 miles.

The *Mauritius*, an outward-bound ship, appears to have touched the west coast at Willem's River the same year, but no particulars are known.

In 1619 Jan Edels coasted along the shore of Western Australia as far south as 29° , and gave his name of Edels-land to a portion of that colony.

In 1622 the south-west extremity of Australia was discovered by a Dutch ship named the *Leeuwin* (Lioness).

In 1623 Jan Carstens, in two yachts, the *Pera* and *Arnhem*, sailed from Amboyna to explore in Java. They traversed the north shores of Australia and south of New Guinea, Cape Arnhem and Arnhem Land, and Pera Head map their course. Carstens, with eight of the *Arnhem's* crew, was treacherously murdered by the natives of New Guinea.

In 1627 the first discovery of the southern coast, from Cape Leeuwin to the Great Australian Bight, was made by Peter Nuyts, in the ship *Gulde Zeepaard* (Good Shepherd), and called Nuyts' Land. It also embraced the islands adjoining of St. Francis, St. Peter, and portions of Nuyts' Archipelago, situated off Fowler's Bay. The accuracy of the survey was attested 164 years afterwards when (1791) Vancouver and D'Entrecasteaux visited that coast; as well as later on, when Flinders surveyed there. Between 1627 and 1791, Flinders states, there exists no record of any navigator arriving off this south coast except Mons. de St. Alouard, who in 1772 anchored near Cape Leeuwin.

In 1628 De Witt, in his homeward voyage from India, passed along the western coast—and hence called De Witt's Land. In the same year Francis Pelsart's ship, the *Batavia*, was wrecked on a reef of rocks, about 200 miles north of Swan River.

In 1636 Gerrit Tomaz Pool, with two yachts—*Klyn*

Amsterdam and *Wezel*—left Banda on the same expedition as Carstens, and at the same place on the coast of New Guinea he met with the same fate.

In 1642 Tasman, commissioned to explore the South Seas, sailed from Batavia to the Mauritius—an island discovered by the Portuguese, but first settled by the Dutch, in 1598—who called it Mauritius, after Maurice, Prince of Orange, their Stadtholder. On acquiring the Cape of Good Hope they abandoned it. Tasman left this and steered on 44° south latitude until he reached the 150° of longitude. On the twenty-fifth day out a man was kept on the look-out at the mast head, and he who first discovered land was to be rewarded with money and grog. On the forty-seventh day, the 22nd November, land appeared bearing east by north. On the 1st December they anchored in a bay named Fredrick Hendrick, and the continent then received the name of Van Diemen's Land, after the Dutch Governor-General in the East Indies. But in 1644 the Dutch Government named the continent "New Holland."

In 1644 Tasman explored the north coast of New Holland, and parts of New Guinea. He entered the Gulf of Carpentaria, calling Limmen Bight after one of his ships.

In 1656 a vessel from Batavia—*De Vergulde Draeck*—was wrecked on the west coast near where Pelsart's ship was lost.

In 1728 a vessel named the *Zeeuyk* was wrecked on the west coast. Captain Stokes, in 1840, discovered several coins and a brass four-pounder breech-loading gun and other relics of this vessel.

In 1688 Dampier, a roving Somersetshire man, who had been sailor, overseer of an estate in Jamaica, and a buccaneer, sailed in a buccaneering vessel to the East Indies. The crew mutinied, and having put their captain on shore at Mindanao, in the Philippine Islands, touched on the northern coasts of New Holland, on their way to England. In 1699 the Admiralty gave him the command of a navy ship, the "Roe-buck," in which to proceed to New Holland. He called at Shark's Bay, and so named it, and he diligently examined

the coast northwards as far as Cape Levis—the western horn of King's Sound. Dampier and Roebuck Bays, also Buccaneer Archipelago, were so named by him. Our Sturt pea is called after him—*Clanthus Dampieri*. He earned great reputation for the exactitude of his surveys.

In 1696 a Dutch ship, under Captain Vlaming, sent from Holland in search of a missing ship, reached the coast of Australia, near Swan River. He discovered an island he called Rottenest, from the numerous rats' nests found there. He landed on the mainland with a strong body of men, eighty-six in all and well armed. They found gumtrees, shells, and parrots, a deserted native hut, and the river mouth, upon which they launched their boats. As they rowed up, a wonderful bird, the veritable *rara avis*, the black swan, was seen. Four were caught, of which two were taken alive to Batavia. Some on shore ate the nut of a native tree, and were so seized with violent vomiting as to become like dead men. Plenty of game was seen, but in the daytime the torment of flies was terrible. Captain Vlaming thence sailed north to Shark's Bay, and finding Hartog's tin plate posted up, added one for record of his own visit. Both were found by Baudin's officers in 1803.

In 1705 three Dutch vessels from Timor examined the north-west coast, of which we have but an imperfect account.

The donation of two tin plates seems to have been the first material record left to Australia by her visitors. To this date all others had but just knocked at the door, not even leaving their names and addresses; but now Miss Australia, as in these poetic days we are wont to figure her, had been presented with the handsome present of two tin plates. Interesting as these historically become to us, they really mark the turning-point of her wooers' visits. Henceforth she ceased to attract the mercantile aspirants of the then outer world. By the side of the rich productions and the densely-peopled industrial races of India her possessions claimed no footing. The great South land was not worth a further visit. The stormy contentions of nations in competition to secure her commercial wealth sub-

sided. For them she had no wealth. Like the waves of ocean, they had pressed her shores as of an adamantine rock, no response following their advances, save a remission to whence they came, carrying back nothing with them of commerce, such as and where these navigators sought it. Australia had nothing for nobody, although as time rolled on she was to prove she had something for somebody; and so, having rejected the addresses of commerce, it naturally retired from the scene, and unbroken silence as to old-world voices reigned along her coasts for nearly seventy years.

After this interlude, there occurred a signal instance for any mind doubting the value of societies to take a note of. The first gem of Australia, with all the magnitude of wealth and importance which invests it to-day, sprung from the resolution adopted by a few gentlemen in London at a meeting of a scientific society for the promotion of a branch of geographical inquiry. Nay, more, may we not with laudable pride assert that from this resolution originated the materials of an historic page in the biography of the world, of illustrious explorers by sea and by land, whose exploits within the last century, and much under our own lives, and within the precincts and over the surface of this rejected great South land—this continent so long left blank on the world's map—have engraved an imperishable record for all time of eminent virtues possessed by men, explorers by sea and on land, eminent for intelligence, judgment, humanity, and pluck—their motto “success or die”—their sufferings borne with equanimity under the direst trials—constituting an army of heroes as much the benefactors of as an honor to the human race?

It was the Royal Society who, in 1767, set a fresh exploration of these regions afloat, in resolving on a South Sea Expedition to observe the transit of Venus. The command was given to James Cook, of the Royal Navy. In opposition to an opinion that for the purpose he should voyage in an East Indiaman (then the largest of commercial ships) or in a three-decker, he chose a barque of 370 tons. She was called the *Endeavour*. She was provisioned for eighteen months,

to face page 46

Captain James Cook.



to face page 47



**Sir Joseph Banks, Bart., K.B., P.R.S., Ob.,
1820.**

itted with twenty-two guns, and manned by a crew of eighty-five persons, including the naturalist, Mr. Joseph Banks, and Dr. Solander, a wealthy volunteer devoted to science. She left Plymouth in July, 1768. Cook's observations on the transit were made at Tahiti in 1769. He was to explore on his return home. Having spent five months in surveying New Zealand, knowing that Tasmania was supposed to be a part of Australia and that little was known of the south and east coast of Australia, he steered toward the south of it, and on the 19th April, 1770, his first officer, Lieut. Hicks, sighted the land at Cape Everard, between the Snowy River and Cape Howe, that is, off the present Gipp's Land. To the south of that point no land was visible, yet he could not determine an absolute severance of Tasmania. Thence he sailed east and north, naming headlands and bays, as time permitted. At Botany Bay—so named in consequence of the numerous flowers found there by Mr. (afterwards Sir Joseph) Banks, the naturalist and a librarian of the British Museum—he remained a few days. Onward, at fifteen miles distance, he discovered a bay or harbor in which there appeared to be good anchorage. This he called Port Jackson, after a Secretary to the Admiralty; and, further on, he named a Port Stephens, north of the Hunter River, after another Admiralty Secretary. Having nearly suffered shipwreck, at a spot called Cape Tribulation, inside the Great Barrier Reef, and well up towards Cape York, he, on the 21st August, 1770, rounded it, passed westward through the strait separating Australia from New Guinea, with open sea to the west, confirming the reality of Torres Straits. Cook was satisfied no European had before this found the eastern coast of Australia, and so, landing near Cape York, he hoisted the British flag, and took possession in the name of George III., by the name of New South Wales. Thence, having visited New Guinea, Java, Batavia, and the Cape of Good Hope, he, on the 12th June, 1771, anchored in the Downs, and landed at Deal.

In 1773 Cook, during his second voyage to the South Seas, explored the east coast of Van Diemen's Land; and

again in 1777, on his third voyage, remained several days in Adventure Bay, on its south coast, and thence passing on through the South-western Pacific he discovered the Sandwich Islands, and there met his death at the hands of the savage and treacherous islanders.

Thus far we have but traced how gradually the existence of Australia had been revealed to the world by navigators coasting its shores. Of all the adventurers none had made so long and close an investigation as James Cook; and when he quitted its shores the chief portion left unexamined lay between Nuyts' Archipelago and Wilson's Promontory, and hence the fact that Van Diemen's Land was insulated from Australia yet remained to be proved.

Meanwhile England, in 1776 (through the obnoxious tea-tax imposed by Lord North on the British-American colonies), had lost her possessions there, and the adverse issue of this attempted unjust and unconstitutional treatment of colonies had placed in power in England the party who had strenuously opposed such irritating and disastrous policy. The value of colonies, and the grounds on which their relationship stood in respect to the mother country, had been more keenly scrutinised during the troublous times of these domestic dissensions, and the better recognition of the relationship, helped by the fresh interests Cook's discoveries had aroused, soon induced the new Ministry, at the head of whom was the younger Pitt, to resolve on the occupation of New Holland. Lord Sydney was then Secretary of State for the Colonies. And thus, in due time, it came to pass—as the Rev. J. E. T. Woods graphically puts it, that “from the 18th to the 20th of January, 1778, a great sight broke upon the view of the Botany Bay tribe of natives, within whose waters three men-of-war and nine other ships dropped anchor.” These carried 1,030 souls.

The commander, Captain Phillip (also commissioned Governor), not satisfied with the site of Botany Bay for the intended settlement, proceeded on the 22nd to examine Port Jackson, a bay a few miles north, mentioned by Cook, and there Phillip found a harbor, “the finest in the world, in

to face page 43

The Death of Captain Cook.

10

"which a 1,000 sail of the line might safely ride." In returning to Botany Bay on the 24th to order all his ships to move up, he, in great surprise, descried two French ships in the offing. On the 25th he returned to Port Jackson, leaving the rest of the ships to follow on the 26th. On that same day, La Perouse, with his exploring vessels, the *Boussole* and *Astrolabe*, entered Botany Bay. On the same day Captain Phillip raised the British standard on shore, and founded the town of Sydney. On the 1st February Lieutenant King was sent to La Perouse to interchange courtesies. La Perouse had arrived from visiting many islands of the Pacific, including Norfolk Island and New Zealand.

And thus, on the 26th of January, 1788, was first sown on Australian soil the seed of British settlement, which, in the ninety-eight years since elapsed, has spread its branches as we see it this day — embracing a continent whose area, in the pungent words of the hand-book of Australia, is "twenty-six times larger than Great Britain and Ireland, fifteen times the size of France, about one-sixth smaller than the United States of America, and one-fifth smaller than the Continent of Europe;" and, I may add, over one-third the size of the old Roman Empire, under its greatest expansion.

On that memorable day when Governor Phillip landed and founded Sydney, the germ of Australian geography proper began its life. Its early growth was however surprisingly slow, a fact attributable to many unfavorable causes. Among these, the country surrounding Sydney was densely covered with timber and lesser woody vegetation, and the soil unsuited for agriculture or even pasture. Behind this lay the Blue Mountain Ranges and their spurs, whose inaccessible nature long resisted all the efforts to penetrate them. They shut in Sydney like a beleaguered city, and consequently left her dependent on supplies imported by sea. What with accidents to provision-ships and delays in their dispatch, the settlement was twice on the verge of starvation. On the part of Governor Phillip there was no lack of enterprise, nor of manly and generous conduct under harassing duties and

most severe trials. When necessity compelled diminished issue of food, he cheerfully shared proportionately with the rest. The extremity of the position with regard to wheaten-flour is indicated in the following statement, namely - that "persons invited to dine at Government House were informed "by the aid-de-camp that they must provide themselves with "bread."

Of the country at that time the Lieutenant-Governor, Major Ross, wrote, "This country will never answer to settle "in. To maintain the people sent here it cannot be less "than probably a hundred years hence." Fortunately he proved a blind prophet, since in less than one hundred years is Sydney a city of palaces, with its own population of 238,000, besides its portion of an interior country developed to sustaining three-quarters of a million more.

In July, 1789, Phillip discovered the Hawkesbury River, and Norfolk Island was held as a penal settlement.

In 1791 the Nepean River was found. After a while Governor Phillip, on the ground of ill-health, was allowed to resign.

In 1791 Captain Vancouver, of His Majesty's ship *Discovery*, while on his way to North America, made the south coast of Australia, east of Cape Leeuwin, at Cape Chatham, so called by him after Earl Chatham, the president of the Admiralty. Coasting eastwards he named Cape Howe, Mount Gardiner, and Eclipse Islands. The weather being thick and hazy, he kept his two ships close in shore, and, passing a high rocky bluff, anchored in six fathoms water, having a clear bottom of white sand. As the weather cleared he found he was at the entrance of a spacious sound, which he thus discovered and named King George's Sound; and landing hoisted the British flag, and formally took possession in his sovereign's name. As a singular coincidence, told by Mr. Gill,* the same day—the 28th September, 1791—on which Vancouver had thus entered King George's Sound the French Admiral, D'Entrecasteaux, in the frigate *La Recherche*, and accompanied by the *L'Esperance*, left the port of Brest on an expedition in search of the unfortunate La Perouse;

* See *S.A. Advertiser*, Nov. 5th, 1881.

and six years after La Perouse himself had on the same day sailed from Brest. On the 24th April, 1792, D'Entrecasteaux reached the south of Van Diemen's Land, and anchored in the channel near Hobart which bears his name.

Now recurring to Sydney. Governor Hunter, who succeeded Phillip, had arrived there in September, 1795, on board H.M. ship *Reliance*. Among the officers of the *Reliance* were two young men destined to play an important part in Australian history: namely, Matthew Flinders, a midshipman, and George Bass, a surgeon. Intent on exploring, they spent their leisure hours in its pursuit. In a small boat, which cost a large sum (it was only eight feet long, and called the *Tom Thumb*, and had a little boy for a crew, besides the proprietors), they soon visited Botany Bay and penetrated twenty miles up the George River. Later on they made a perilous voyage in the same boat along the sea-coast southwards to Port Hacking, seven miles of ocean south of Botany Bay. In 1796 Bass started for the Blue Mountains, and ascended the highest peak, seeing beyond it only "other ranges of mountains." On December 3rd, 1797, in a whale-boat, with six seamen and six weeks provisions, he started on a voyage to the south, which was the first step in proving the fact that Van Diemen's Land was no part of Australia. On the 19th he discovered Twofold Bay. On the 20th rounded Cape Howe and landed north of Ram Head. Here a gale detained him ten days. On the 31st he reached Wilson's Promontory, and on the 4th of January was at Western Port, where—his boat needing repair—provisions failed, and he returned to Sydney after twelve weeks absence, during which in an open boat he had made over 600 miles of coasting. At Western Port black swans were in hundreds and ducks in thousands.

On October 7th, 1798, Flinders, then twenty-four years old, taking as his companion Bass and a crew of eight volunteer seamen from the King's ships, sailed southward in the sloop *Norfolk*, of twenty-five tons, with twelve weeks provisions. They entered the River Tamar and named Port Dalrymple. Driven by westerly gales to the Furneaux

Islands on the N.E. of Van Diemen's Land, some weeks were lost ere they could again work westward. On the 6th December they discovered Circular Head. On the 9th a vast cloud of sooty petrels (mutton birds), in a long compact stream, passed over their heads, the breadth of which was estimated as 300 yards, with depth of fifty or sixty yards. On the same day a long ocean swell came up from the southwest, which, though dangerous to them, they hailed as proof that they had discovered the existence of a passage to the South Indian Ocean. They sailed on through the sea thus found open, and passing down the west coast of Van Diemen's Land, reached the Derwent on the 3rd January, 1799. The brother heroes again sailed, and in eight days were safe in Sydney. To the straits thus found Governor Hunter, at Flinders' suggestion, gave the name of Bass's Straits. Thus was solved the problem of the insularity of Van Diemen's Land; and these men were the first to circumnavigate it.

In July of this year Flinders was sent to investigate Moreton Bay, and further on to Harvey's Bay, when his leave of absence from the *Reliance* having expired, he returned to her, and reached England at end of 1800.

On the 28th September, 1800, Captain King, who from its settlement had been Lieutenant-Governor of Norfolk Island, succeeded Hunter as Governor of Sydney. Early in this year the British Government had sent Lieutenant Grant from England, in command of the *Lady Nelson*, of sixty tons burden, to explore and survey the coast of New Holland, under the Governor's orders. Grant was to sail through the newly-discovered Bass's Straits. He sighted Australia on the 3rd December, 1800, and named Cape Northumberland, Mount Gambier (after the admiral at the battle of Copenhagen), Mount Schanck, Cape Bridgewater, Cape Nelson, Portland Bay, Cape Otway, and, passing on at night, left Port Phillip unobserved, and reached Sydney on the 13th December, 1800. He was at once ordered by King to return to Western Port, and survey the coast between that and Cape Otway; but, after two months absence, went back to Sydney with this work unaccomplished. Governor King then sent Murray, a

to face page 12

Captain Flinders, R.N.

20

mate of H.M.S. *Porpoise*, to do what Grant had failed in. He sailed November 12th, 1801. On reaching the mouth of the straits, he encountered strong westerly winds. He first examined Kent's Islands. On the 7th December he was at Western Port, where foul weather further detained them. On the 5th January, 1802, the *Lady Nelson* was off the entrance to Port Phillip, and Murray endeavoured to enter the harbor which all could see. The excitement was aided by the approach of hazy weather and a rough sea, with rocks and breakers on a lee shore. Murray feared the risk of entry, so hauled off to King's Island and examined it; and it was not till the 15th February that his ship stood up the port. He landed and hoisted His Majesty's colors, and, under a royal salute, took possession in the name of George III., naming the harbor as Port King.

As before stated, at the end of 1800 Flinders had returned to England. There the charts of the new discoveries were published. Flinders' reputation as a skilful navigator was recognised, and a plan proposed to Sir Joseph Banks for completing the examination of the coast of New Holland was approved by him and Earl Spencer, the First Lord of the Admiralty. For this purpose, in February, 1801, Flinders was appointed commander of the sloop *Investigator*. On the 18th July he sailed from Spithead. His work became specially important to South Australia. On 6th December he sighted Cape Leeuwin. He coasted slowly along the land eastward. He surveyed King George's Sound, cut trees, and found evidence of recent visit of some European, an explanation of which became apparent in a neglected garden found on one side of an inner channel. Close to this garden was fixed a sheet of copper, bearing the inscription—"August 27, 1800. "Charles Dixon, ship *Elligood*." From King George's Sound Flinders coasted close to the land, hoping to find some inlet. For days he sailed along the Australian Bight, of which he published a minute description. Just beyond Cape Nuyts (discovered by Nuyts in 1627) a bay was found, which he called Fowler's Bay, after his first lieutenant. Along with the coast he here surveyed the various islands of Nuyts'

Archipelago. After Fowler's Bay, Smoky Bay, Streaky Bay, Anxious Bay, and Coffin's Bay were discovered, and so named by Flinders. Coffin's Bay, so named after Sir Isaac Coffin, the commissioner who had fitted out the *Investigator*; Streaky Bay, from remarkable streaks noticed in the water where the vessel anchored. Onward various headlands were marked and named, as well as bays and islands, as now recorded in our charts. From Sleaford Bay the coast tended northward, and thither they turned. Thistle Island was discovered, and named after an officer of the ship. North of it lay a group of islands, and the cutter was sent to search amongst them for an anchorage for the *Investigator*, where fresh water could be procured. This led to a sad accident. Though seen sailing about the islands during the day, night came on, but no return of the cutter. Signals were used, but without response. Next day the wreck of the boat was found bottom upwards; not even the bodies of the crew were found, after days of search. The site of this disaster was named Memory Cove, and the head south on the main land Cape Catastrophe. Flinders was a Lincolnshire man, and hence in the course of his discovery and survey of Spencer's Gulf he named Port Lincoln and Boston Island. Sir Joseph Banks Islands were then found and named. Pushing on up the Gulf, a fond hope was for a season cherished that its head might prove the outlet of some interior rivers, a hope dashed to the ground long before Flinders' boat stuck in the slimy mud of the tortuous and diminutive creek crowded with mangroves, which he found the Gulf head to consist of. In the fine range to the east (afterwards called Flinders Range) the most conspicuous mount was named after the naturalist of the party, Mr. Brown. Its summit was reached by Mr. Brown and others, who "camped the night out without water."

On the 13th March the *Investigator* coasted down the east side of the Gulf—the west side of Yorke's Peninsula. Hardwicke Bay was discovered and named, also Cape Spencer, the south point. After rounding a point on under the land to the south (named Point Marsden, after a secretary to the Admiralty), to which rough weather had driven Flinders, a

bay was found, and called Nepean Bay, after Sir E. Nepean, also of the Admiralty. Here, on 22nd March, they landed, and soon enjoyed the fresh meat of numerous kangaroos, hence named Kangaroo Island. From Nepean Bay Mount Lofty was named, it appearing the highest point in the mountain range visible to the eastward, and the headland at its southern extremity Cape Jervis. The examination of the coast line from Cape Spencer was then commenced, and the Troubridge Shoal found and named, and the passage between Yorke's Peninsula and Kangaroo Island called after the ship, Investigator Strait. Flinders then went to the head of the Adelaide gulf, which he called St. Vincent, after a Lord of the Admiralty. "The head was just like that of Spencer's Gulf, "only a little more cheering." Landing, they went towards Mount Hummock, and thence could see more northern extension of the Mount Lofty Range.

On exit from this gulf, Flinders again touched at Kangaroo Island, examining the portion of it opposite Cape Jervis. The passage between, as it formed a sort of private entrance to St. Vincent's Gulf, he called Backstairs Passage, and the small bay in which his ship anchored Antechamber Bay, and its principal cape Cape Willoughby. Outside the eastern mouth of the passage he found three small granite islands, named the Pages—a spot notable in this record, as near by he that day met the French discovery ship under Admiral Baudin, who was on his way from having examined the south and east coasts of Van Diemen's Land, and from Western Port on to this spot of meeting.

Hence Flinders, who gives an interesting description of the interview that took place between himself and Baudin, called that part of our coast "Encounter Bay." A record of Baudin's presence here is to be found cut on the face of a slate rock on the shore to the east of Hog Bay, Kangaroo Island. Baudin's map describes this part of Australia as le "Terre Napoleon," St. Vincent's Gulf as le "Golfe Josephine," and Spencer's Gulf as le "Golfe Buonaparte." Thence Lacedpede Bay, Cape Jaffa, Guichen and Rivoli Bays, all named by Baudin, were successively

passed by Flinders on to Cape Northumberland, the point at which Grant, in the *Lady Nelson*, in 1800, made the land and commenced his surveys. Along the entire line of the South Australian south coast, from Nuyts' Archipelago, off Fowler's Bay, to Cape Northumberland, near the eastern boundary of the colony, Flinders had thus completed a first and most careful survey (as subsequent surveys have confirmed), for which we owe him a great debt of gratitude. To his memory on our coast a monument has been erected, not yet by us, but by a distinguished lady, the heroic wife of an heroic husband, a great Arctic navigator, and, in the earlier days of this colony, the Governor of Van Diemen's Land—Sir John Franklin. He shared with Lady Franklin the highest esteem for Matthew Flinders, under whom he had served as a midshipman on board the *Investigator* during this voyage of discovery just named.

The day will come when we shall wake up to a recognition of our debt to Flinders, to find expression in some suitable and durable structure, a claim the more pressing on us, since—let us openly and manfully admit with regret and a becoming sense of shame the fact which lies like a spot upon our escutcheon—we once refused the aid of a small annual gratuity asked to comfort in her poverty the only surviving daughter of so great and good a man, our special benefactor.

To inland explorations which, within the comparative limited space of the last seventy-three years, revealed to us the knowledge we have of the geography of Australia, I am conscious of devoting far less attention than the subject claims, and far less than is due to the great services rendered by the eminent explorers whose names adorn the pages of Australian history, and whose characters and deeds cast a national glory on these colonies and on our race.

In relief of this defect I call to mind the fact that none but the very youngest of us is without some personal knowledge of the actors, or has heard descriptions of their performances from eye witnesses of them, or has read the records

as, from time to time, published in our newspapers, or Parliamentary reports, or the volumes written by the explorers themselves; whilst many of us, whose lives cover more or less proximately the whole seventy-three years of adventurous travel under review, have grown familiar with them as of household words.

Various sections of society have contributed to the ranks of explorers of Australia—the navy, the army, our surveyors-general, and other officers of the civil service, botanists, squatters and other country settlers, and our citizens. Nor have their nationalities been wholly British. In Count Strzelecki we have a Pole; in the persistent and lamented Leichardt, and in the scientific naturalist, Baron von Mueller, Germans; whilst enterprising and patriotic governors have greatly promoted their efforts; some, as duty permitted, themselves took the field.

I quote seventy-three years as the measure in time of Australian land exploration; for of the ninety-eight years since Sydney was founded, twenty-five passed ere the rugged Blue Mountain Range, with its interlacing of intricate, deep, and precipitous ravines, which had hitherto repulsed every effort to surmount them, was discovered to be passable and was crossed over, and the first vision gained of the vast interior beyond it.

If in those earliest days balloons had been at hand and subject to sufficient control, what cheering light of hope one view of the geography as it existed over that rugged range would have shed upon the lives of the Sydneyites! Long dependent on imported food, without pasture for dairy or meat, no soil near by fit or ready for cultivation of the fruits of the earth, and fresh water scarce, and dire starvation more than once staring in the face; yet, once over this mountain wall, and there lay spread before them a boundless scene of grassy slopes and low-lying river-fed country, amongst which extensive pastures and rich arable plains were interspersed.

In June, 1813, the Blue Mountains were first crossed by William Charles Wentworth, W. Lawson, and Gregory Blaxland. They discovered the fine grassy plains where Bathurst

now stands. For this deed Governor Macquarie granted each 1,000 acres of land. A like reward and promotion to the post of Deputy-Surveyor in Van Diemen's Land was given to G. W. Evan, a surveyor the Governor had dispatched, in November, 1813, to follow on the tracks of Wentworth, Lawson and Blaxland. He continued the journey for three weeks more, finding "a country equal to any demand for arable and pasture "for a century to come."

Soon after Governor Macquarie himself visited the new country, and the construction of a road over the mountains immediately commenced. This was completed in April, 1815.

In 1817 Oxley, Surveyor-General of New South Wales, accompanied by Allan Cunningham, the botanist, started from Bathurst and followed the course of the River Lachlan until its bed was merged in vast level swamps and difficult to trace. Meanwhile, though no rain fell where he was, the rising waters endangered the life of the party. He boldly turned aside, steering south-west, in hope of making Cape Northumberland; but now the party suffered from thirst. Some of the horses died. Turning back, he again struck the Lachlan, and thence cut the Macquarie River near a place called Wellington Valley, and thus reached Bathurst, his starting-place.

In 1823 Oxley was sent in search of a penal settlement north of Sydney, and discovered the Brisbane river.

Hamilton Hume, the son of a commissariat officer, was born at Paramatta, 1797. He seems also to have been a born bushman. When seventeen years of age he, with a brother and a black boy, discovered the country about Bong Bong and Berrima; and subsequently with Meehan, a surveyor, the plains of Goulbourn. For this exploit Governor Macquarie granted him 300 acres of land.

In 1824 Hume and Hovell crossed the Upper Murray River, then called the Hume; passed the Hovell, now called the Goulbourn River, and ultimately struck the sea-coast near Geelong.

I should state here that another Australian-born explorer, though as a navigator, Captain Phillip Parker King, during

years 1818 and 1822 commanded three several coast voyages in surveying the intertropical and western coasts of Australia. He was born at Norfolk Island, where his father was Lieutenant-Governor, and subsequently Governor of New South Wales. His narrative in two volumes is full of interest.

In 1827 Allan Cunningham, the botanist, was sent from Bathurst to explore the Cudgegong River, and discovered Pandora's Pass, through which to reach the Liverpool Plains. From the head of the Hunter River, discovered the Darling Downs.

In 1828 our own Captain Charles Sturt, of the 39th Regiment, comes upon the scene. With Hume in company he led a party formed by Governor Darling. The year was one of severe drought. Where Oxley had encountered marshes and flood waters, they found dry polygonum scrub, with patches of reeds, and the River Macquarie was a mere channel of mud. After much hardship they came upon a large river, into which the Macquarie flowed. This they named the Darling; but, to their horror, the water was salt. In two other directions, many miles apart, they further struck the Darling, but ever to find its waters salt. After four and a half months absence they returned, having ascertained that the Macquarie, the Castlereagh, the Nummoy, Gwydir, and the Darling Downs rivers flowed into this new great river, the Darling.

In 1829 Sturt was again commissioned to explore the southern rivers. He sought the Murrumbidgee. Hume was unable to join him. From his proved skill in the bush, and his knowledge of the natives, his absence caused regret. Mr. (afterwards Sir) George McLeay was Sturt's companion. Forming a depôt on the Murrumbidgee, near its junction with the Lachlan, Sturt, with a chosen band, started down the river in a boat. They passed the junction of the river which Hume had called after his father, which Sturt named the Murray, after Sir George Murray, then Secretary of State. At the junction of the Darling with the Murray they were surrounded by many hundreds of excited natives threatening their destruction; a distance on collision seemed

inevitable, the natives having gone ahead down the river, to avail themselves of an extended sandspit which left the narrowest channel by which the boat must pass ; and now the boat bore down on this narrow channel. In Sturt's own words, " The sandspit was covered with a dense mass of natives in " tumultuous uproar. Some of the chiefs advanced to the " water's edge, to be nearer their victims, and, with extreme " reluctance to take life, I foresaw it impossible longer to " avoid an engagement, and with fearful numbers. The " spectacle was appalling ; yet my little band preserved their " coolness. I told them the only chance of escape would " depend on their firmness. I desired that, after the first " volley had been fired, McLeay and three of the men should " attend to the defence of the boat with bayonets only, whilst " I, Hopkinson, and Harris, would keep up the fire, as most " used to it. No shot, however, was to be fired till I had discharged both my barrels. Thus, having lowered the sail, " we drifted onwards with the current. As we neared the " sandspit I stood up and made signs to the natives to desist ; " but without success. I took up my gun, therefore, and, " cocking it, had already brought it to the level. A few " moments more would have closed the life of the nearest of " the savages. I was determined to take deadly aim, in " hopes that the fall of one man might save the lives of many. " But at the very moment when my hand was on the trigger, " and my eye along the barrel, my purpose was checked by " McLeay, who called to me that other blacks were on the " left bank of the river. Turning round I observed four men " at the top of their speed. The foremost, as soon as he got " ahead of the boat, threw himself from a considerable height " into the bed of the river, struggled across the channel to " the sandspit, and stood in front of the savage against " whom my aim had been directed. Seizing him by the " throat, he pushed him backwards, and, forcing all " who were in the water upon the spit, he trod its " margin with a vehemence and an agitation that were " exceedingly striking. He pointed to the boat ; he shook " his clenched fist in the faces of the most forward, and

Captain Sturt.

40

"stamped with passion on the sand. One only of the four
"natives followed their leader from the left bank to the
"scene of action. We were overwhelmed with astonish-
"ment at the action of this remarkable savage—so singu-
"lar, so unexpected, and so strikingly providential had
"been our escape." The boat proceeded on its voyage.
The party almost daily met with numerous natives. Sturt
utilised friendly ones, by sending them ahead to announce
his coming. He observed the high range at a distance to
his right. Its most elevated point—Mt. Barker—he then
supposed might be Flinders' Mt. Lofty. They passed into
the lake—called by Sturt "Alexandrina," after Her Majesty
the Queen—named Point McLeay and Point Sturt, and,
going round the Goolwa side of Hindmarsh Island, walked
along the shore to the Murray sea-mouth. Their provisions
were now so far exhausted that they lost not a day in starting
the return journey, and, after many weeks of toil and many
difficulties and sufferings, reached Sydney, all his party safe,
on the 25th May, 1830, after an absence of nearly six
months.

Such was Sturt's bravery, coolness, judgment, and good
fortune, that in all his explorations he never took the life of
a native. Stern, yet kind, considerate, and unselfish, he was
not only readily obeyed, but trusted and loved by his men.
Some here to-night knew him well, and would confirm what
I say of him. Bred early to arms in the exciting times of
the wars of Napoleon I., he had, when seventeen years of
age, seen active service, and been tempered to cool self-con-
trol. Quartered with the nearest of British troops to Paris,
at the time of the Battle of Waterloo, his regiment was the
first to enter Paris, and, as its standard bearer, as he himself
told me, was the first then to unfurl the British flag in
Paris.

Whilst these inland explorations were radiating from
Sydney as the centre, some examinations and settlement were
in motion elsewhere in Australia.

In the year 1824, when Singapore was ceded to England,
a British occupation of Melville Island, part of our Northern

Territory, was effected. Its object was to open trade with the Malays known to visit these north shores for the seaslug or trepang fisheries, with which to supply China. In 1827 a further such settlement was made more to the eastward, at a bay called Raffles Bay, as indeed, later on, in 1838, and yet more east, Port Essington was occupied, whose existence, like that of the two preceding, proved but ephemeral. Captain Stirling of the British Navy had been in charge of Raffles Bay, but was, in 1828, engaged in surveying the coast of Western Australia from King George's Sound up to the Swan River. He had received instructions to establish a settlement, and founded the town of Perth; and, when Charles Sturt returned to Sydney after his voyage down the Murray to its sea-mouth, thereby connecting inland exploration with the surveys of Flinders on the coast, a brother officer of his, Captain Barker, who had succeeded Captain Stirling as commandant at Raffles Bay, and remained there up to 1829, when both the Melville Island and Raffles Bay settlements were closed, was stationed at King George's Sound. To him instructions were now sent from Governor Darling, at Sydney, to hand over his charge of King George's Sound to Stirling, and, following up Sturt's work, which the exhaustion of provisions, as before stated, had compelled him to abandon, to make an accurate survey of Lake Alexandrina. Thus instructed, Captain Barker started in a schooner, and, having arrived at the entrance of St. Vincent's Gulf in April, 1831, searched its eastern coastline if perchance he might find some water communication between it and Lake Alexandrina. In this, of course, he failed. He, however, landed, accompanied by his second in command, Mr. Kent. They ascended Mount Lofty, whence the beauty of the scenery surprised and delighted them. The plains beneath stretched out before them as a rich pasturage bordered by the Gulf, which had the semblance of a lake. To the north the hills faded into more distant elevations. Eastward they gazed in silent admiration, there being specially conspicuous the hill (Mount Barker) which Sturt, in descending the Murray and crossing the Lake, had taken to be the Mount Lofty of Flinders.

to face page 62

Victoria-square, Port Essington.

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Returning to their ship, they still explored the coast, having discovered and named the River Sturt, and, landing on a southern point, crossed eastward towards Lake Alexandrina. "At each step," says Woods, "they were delighted with the richness of the country." Having reached the Lake, they made their way to the channel through which the Murray drained into the sea—the terminal point of Sturt's travel. Captain Barker wished to take the bearings from the top of a sandhill on the opposite side of the channel, whose width he estimated at a quarter of a mile. Being a strong swimmer, he tied his compass on the top of his head, then stripped, and swam across. He was seen to ascend the sandhill on the other side, and thence was seen no more. Hour after hour his anxious companions waited for him, but in vain. Night set in, and then the gleam of numerous fires about the sandhills he had mounted forced the terrible conclusion that he had come to a violent end. At break of day they returned to their vessel for assistance. With the aid of a native woman, whose services they procured at Kangaroo Island, they learned the sad particulars of his fate. He had been seen by two natives, who wounded him with a spear. Rushing to the sea, in an endeavor to avoid them, he was further speared through the body, and killed, and then thrown into the sea.

Mr. Kent took command of the expedition. In returning to the schooner he passed up the valley of the Inman, and sailed for Sydney. A few years passed ere the Murray mouth was again visited, and then it was by South Australians.

The progress of Australian land discovery now takes us back to Sydney, and to Major (afterwards Sir Thomas) Mitchell, the Surveyor-General of New South Wales. He commanded three expeditions. In the first he penetrated northwards from Sydney—the end of 1831. Crossing the rivers Hawkesbury and Hunter, and over the range which severs the sources of the Hunter from the Peel River and Liverpool Plains, which had been partially discovered by Oxley in 1818, and Allan Cunningham in 1827, he followed

the Nammay River for over two degrees of latitude to its junction with its now called Barwon River, whose sources are about the Darling Downs. In the second, in 1835, to investigate the course of the River Darling, from where its discoverer, Charles Sturt, in 1829, had left it. He named Fort Bourke, Mount Lyell, Mount Dawbiney, and Mount Murchison, and many other prominent points, and proceeded to near Menindie—thence supplies failing, he returned to Sydney. During this trip his botanist, Mr. Cunningham, straying from the party, was attacked by natives and killed. In his third expedition, 1836, he travelled southward, along the Lachlan River to its junction with the Murrumbidgee, and thence along the Murray to the junction of the Darling, going 100 miles up that river. Here, interrupted by the hostility of the natives, with whom he was unable to avoid an encounter, he turned south, and leaving the Murray at Swan Hill, which he so named, descended by Mount Hope, across the Loddon, the Avoca, and the Wimmera, and having reached the Glenelg River, followed its course to the sea-mouth. So rich was the soil and so beautiful the pasture scenery of the country thus passed over, that he gave it the title of Australia Felix. From the Glenelg mouth he went east to Portland, surprised to find a white settlement there—Mr. Henty's. This good fortune enabled him to recruit his stores, and so re-inforced, he conducted his party north-east in as direct a line as was practical for Sydney. The Grampian and Pyrenees Mountains were thus discovered by Mitchell. Great interest attaches to Mitchell's narratives, to which further reference here is impossible.

During these important discoveries by Major Mitchell, active measures were in force for the settlement of South Australia. The South Australian Company, in which the late Mr. George Fife Angas took the most active part, had been formed to meet the material requirements of the Act, which were essential to enable the Commissioners under it to found the colony. Consequently, on the 4th February, 1836, the *London Gazette* published the following appointments:—

His Excellency Captain John Hindmarsh, Governor.

Mr. (afterwards Sir) James Hurtle Fisher, Resident Commissioner.

Sir John Jeffcott, Judge.

Charles Mann, Esq., Advocate-General and Crown Solicitor.

Mr. Osmond Gilles, Treasurer.

Mr. John Brown, Emigration Agent.

Colonel Light, Surveyor-General.

Mr. (afterwards Sir) George Strickland Kingston, Deputy Surveyor-General.

Messrs. B. T. Finniss, O'Brien, W. Jacob, Symonds, Neale, Cannan, and Alfred Hardy, Assistant Surveyors.

Mr. Thomas Gilbert, Colonial Storekeeper; and

Mr. George Stevenson, as the Governor's Private Secretary and Clerk of Council.

Messrs. Kingston and Finniss, with other officers of the survey staff, left England in the *Cygnets* on the 24th March. Having touched at Rio, they did not reach Nepean Bay, Kangaroo Island, till the 11th September. Colonel Light sailed in the *Rapid* from the Thames on the 4th May, and arrived at Antechamber Bay, Kangaroo Island, on the 19th August. Moving on to Nepean Bay, he found the *John Pirie* and two other vessels of the South Australian Company, with officials, passengers, and emigrants, already there; and other vessels, chartered by the Company, shortly swelled the number.

Colonel Light had been an experienced and trusted officer of the great Duke of Wellington during the Peninsular War. His duty now was to select and survey a site for the capital town of the new colony, and a sufficient area of country lands to satisfy the claims of purchasers (to whom the London Commissioners had already sold it, and many of whom had arrived before him), as well as to hold in readiness for occupation lands marked off for constant additional purchasers.

The too speedy dispatch of landowners on the heels of the surveying staff created an unwelcome impatience amongst the claimants, and very undesirable and harassing pressure on Colonel Light and his survey staff.

After careful reflection on the merits of competitive

localities for the capital site (Port Lincoln and Encounter Bay having their advocates), Colonel Light decided that he should never find one more eligible than in the neighborhood of Holdfast Bay. Thus resolved, he, on the 18th December, entered the Port Adelaide Creek. The same day a ship—the *Tam O'Shanter*—weighed anchor at Holdfast Bay, and followed, and he adds, "It was really beautiful to look back" and see two British ships for the first time sailing up "between the mangroves."

On the 24th Colonel Light walked over the plain to that part of the river where Mr. Kingston had pitched his tent. He fixed the site of the City of Adelaide, and that of Port Adelaide for its harbor.

No one locality for rendezvous of ships from England having been determined on there, Colonel Light—after three or four months—anxiously looked for the arrival of the Governor. He dispatched a small vessel in search, in case the Governor had put in to Port Lincoln, and hoping he would come on to Holdfast Bay. Light's surmise proved correct; and, acting on his request, Captain Hindmarsh, on board the *Buffalo*, reached Holdfast Bay on the 28th December, 1836, and landing, hoisted the British flag. The colony was duly proclaimed under the shade of a gum tree. His Excellency's Commission was read in the presence of some 200 people.

We are favored by having yet amongst us survivors of Colonel Light's staff, of whom are the Hon. Boyle Travers Finniss, and Mr. William Jacob, of Moorooroo. Probably both these gentlemen, as well as Sir John Morphett and other survivors were eye-witnesses of the landing of Captain Hindmarsh and the proclamation of the colony.

Let us hope that on some future meeting of the Society we to-day inaugurate they may interest and instruct us by personal narrative of events of that period.

In selecting the site of Adelaide, Colonel Light was subjected to criticisms so severe as to painfully affect his too sensitive nature. His Excellency the Governor even, as was perhaps not unnatural in a navy man, had preference for a

Colonel Light.

44

coast site. But Light, on whom, as he in defence said, the responsibility officially lay, found no grounds with the oppositionists to shake his own well-considered reasons. Even at sea, ere he reached the colony, he reflected that the prevalent south-westerly winds would drive their vapours on to the mountain range, on the east side the gulf, and thus prove an antidote to those droughts so often experienced on the eastern coasts of Australia. On landing at the Adelaide Plains, their evidence fully confirmed this opinion. On the 11th January, 1837, when employed in close examination of the exact site for Adelaide, to the query, "Why he chose that exact spot," the reply was—"Because it was on a beautiful and gently-rising ground, and formed altogether a better connection with the river than any other place." Further, "the site was central to good land throughout its vicinity; and at no inconvenient distance from the Port." In an unpublished letter, dated October 5th, written to Mr. William Jacob from Port Adelaide, where he was then surveying, Colonel Light writes, "I was never sanguine on any point but one, and that was the eligibility of the site for Adelaide; in that I was always confident."

In consequence of the criticisms to which he was subjected, he subsequently published notes in defence. However, the loss of his papers, by fire, abruptly stopped the narrative. A few days since, Mr. Jacob kindly supplied me with a copy of the letter containing the above extract, and in doing so refers to the fire as follows:—"I was dining with him (Light) when this fire took place. It arose from Fisher's house, and, both being built of reeds, nothing was saved, and there went the original plan of Adelaide."

For the preface to his notes, so far as published, addressed from "Thebarton College, near Adelaide, March 28th, 1839," Colonel Light says:—"The reasons that led me to fix Adelaide where it is I do not expect to be generally understood or calmly judged of at present. My enemies, however, by disputing their validity in every particular, have done me the good service of fixing the whole of the responsibility on me. I am perfectly willing to bear it; and I leave to

“ posterity, and not to them, to decide whether I am entitled
“ to praise or to blame.”

Colonel Light did not long survive these his early labors. He died October 5th, 1839, and a monument to his memory occupies the centre of Light-square.

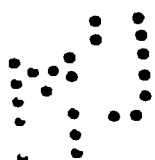
Colonel Gawler, succeeding Governor to Captain Hindmarsh, arrived in South Australia on October 13th, 1838.

Prior to his arrival several short explorations were made of the plains and hills leading from Adelaide.

Messrs. Cock and Finlayson are said to have first crossed the Mount Lofty Range and pushed on to Lake Alexandrina. In 1837 Messrs. Strangways and Hutchinson took a dray, drawn by two bullocks, over the southern hills to Encounter Bay. They proceeded in a whaleboat to the Murray Mouth, and discovered the Coorong waters stretching far south. At Encounter Bay they met two men, who said they had recently arrived at the Murray Mouth from the west side of Cape Otway, with one horse and some flour. They had walked the distance in six weeks, and had met few blacks and no obstructive stream. They took a day to cross the lake on a raft they had constructed. This raft Strangways saw ; but the names of these pioneers are not given. Immediately after this the Judge (Sir John Jeffcott), Captain Blenkinsopp, and two of their boat's crew, exploring the Murray Mouth Channel, the surf of the breakers overwhelming the boat, were drowned.

In 1838 the first journeys overland with cattle from Victoria were made by Mr. Charles Bonney, our old fellow-colonist, and ever respected former Crown Lands Commissioner, magistrate, and holder of many official posts. He came *via* Portland Bay. After leaving the Glenelg in a westerly course, his route was along the south-east seashore country. He named “Mount Muirhead” after his bullock-driver. Two fresh-water holes near to Lake Albert have since borne the name of Bonney's Waterholes. They were found by him. Mr. Hawdon came from New South Wales, and crossed the country with his cattle more inland. Lake Hawdon was named Para. Eyre, Mundy, and George Hamilton were in turns all overland explorers, bringing livestock into the colony.

1837	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	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Men of the "Beagle" Killing an Alligator, Victoria River.

Early in Governor Gawler's time, and accompanied by Mrs. Gawler, he crossed over to the Murray, and sailed up it to North-West Bend. Subsequently, in striking through the Murray scrubs for the ranges westward, their horses being exhausted, and greatly needing water, that ridden by Mr. Bryan, the Private Secretary, fell in the rear, and its rider, having lost the track, sadly perished.

Between 1837 and 1839 Lieutenant (now Sir) George Grey conducted two expeditions in Western Australia. In these enterprises he demonstrated that character for courage, energy, and perseverance—often under most crushing circumstances—for which South Australians know him to be remarkable. He had the misfortune to be speared in the hip. His published travels are full of interest, and speak for themselves. On the north-west coast the tropical country about Hanover Bay, Prince Regent's River, and off Camden Sound, was carefully examined, and he discovered and named the Glenelg River, with its basaltic rocks and rich soils and gorgeous vegetation. In the second expedition behind Shark's Bay he discovered and named the Gascoyne River; and, through the appalling loss of his depôt of stores, swept away by raging seas, his whole party long seemed doomed to certain destruction. "We are all lost," was the exclamation of one, and often the thought of all. To die a cruel death seemed inevitable. Grey's illustrations of the natural history of the districts he visited, and of the conditions and character of the natives, with their rude paintings, found in sundry caves, make his travels valuable contributions to geographical discovery and natural history.

At this time H.M. ship *Beagle*, Captain Wickham, was exploring on the north-west coast of Australia. Stokes (afterwards captain of the same ship) was of this party. They discovered the Victoria River, and followed far up it. Here Stokes received a spear wound. They examined variously the Gulf of Carpentaria, Port Essington, Cambridge Gulf, Hanover Bay, and Camden Sound.

In order of time we now come to Edward John Eyre (one of ourselves), a South Australian magistrate specially posted

on the Murray for the due protection of the aborigines, a squatter, an eminent explorer, and subsequently Lieut.-Governor in New Zealand, and then Governor of Jamaica. Those of us who well knew his large-heartedness, his valuable services for years amongst the aborigines of this colony, his familiarity with their character, ready appreciation of their good qualities, and sad experience of some ungovernable savage ones, cannot for a moment believe that the charges of cruelty and oppression brought against him by a party in Jamaica had the slightest foundation. His whole bearing to the black races with us was a rare, personal, unselfish, benevolent devotion to their good. As a bold and intrepid explorer, few have equalled, none have surpassed, him. If he had a fault, it was, that his indomitable perseverance threatened to exceed human endurance. Like a high-metalled steed, he would run to the death.

During the Governorship of Col. Gawler, Eyre made two distinct explorations. The first was north from Adelaide; the conception being bold and worthy of the man. He would endeavor to see what the centre of the continent was like. The second was from Mount Arden overland to Port Lincoln, and along the coast westward round the head of the Great Australian Bight to King George's Sound. Indeed, much of what Flinders had accomplished along the coast of the south part of Australia he would travel in something like a parallel line inland. He was no novice in the art or the difficulties of exploring. During eight years prior residence in Australia he had visited many parts of New South Wales, Port Phillip, South Australia, Western Australia, and Van Diemen's Land. From 1836 to 1840 he had conducted expeditions across from Liverpool Plains, in New South Wales, to the Murray; from Sydney to Port Phillip; from Port Phillip to Adelaide; from King George's Sound to Swan River. In truth, he was already a matured bushman. To and in Western Australia, Mr. Edward Bate Scott, who is still amongst us, had been Eyre's young companion, and throughout the first exploration and part of the second in South Australia, which we are about to speak of,

to face page 70

Edward John Eyre.

49

Mr. Scott was still his trusty friend and second in command.

On the 18th of June, 1840, after a farewell social feast at Government House, at which His Excellency, Colonel Gawler, in glowing terms, dwelt upon the important object of the proposed expedition, and his gratification at the warm sympathy with it evinced by the colonists; and, after an admirable and feeling address from the even then veteran explorer, Sturt, to Eyre, as a "man about to risk his life for "his country's good," and the presentation to Eyre of a very handsome Union Jack the ladies had neatly worked in silk, and the warmest expression and prayers for his success and safety, Eyre started from Adelaide on his eventful labors.

Flinders, in 1802, had pulled his boat up the creek, at what now bears Port Augusta on its shores, until the oars touched either bank—at the same time his naturalist, Mr. Brown, had ascended Mount Brown. They both had described Mount Arden still more north, and to Mount Arden it was that Eyre was intent to go, and thence to plan the second stage.

So Eyre's party travelled North. They crossed the Little Para and Gawler rivers; the Light, the Gilbert, the Hutt, the Broughton, the Reedy Creek, the Rocky River, Crystal Brook, the Grassy Plains, S.E. from now Port Germein, the Telowie and Baroota Plains (leaving Mount Remarkable, which Eyre named, to the right), and on under Mount Brown to a spring found between that and Mount Arden, pushed on to Saltia Creek, and here Eyre formed his first depôt. With the greater part of the space this first section of the expedition presented, Eyre and his party were surprised and delighted. Gently undulating grassy hills, easily travelled over. Timber picturesquely interspersed amongst the hills and on the plains—frequent waters and rich soils.

At this depôt Eyre received the heavier supplies of stores sent from Port Adelaide to the head of Spencer's Gulf in the cutter *Waterwitch*.

Having received the stores and buried some at this depôt, and forwarded despatches to Adelaide by the returning

cutter, the whole party travelled up the vast open plain, stony and barren, on the western side of Flinders Range. From a projecting hill—Mount Eyre—the basin of Lake Torrens was discovered. In the dry and desert region about Lake Torrens, as Eyre found it, no inducement existed to explore in that direction. Eyre's great leading hope was that Flinders Range, which, as far as he could view it from Mount Eyre, retained its upland, rugged character, would continue and form a source of feed and water right into the far interior. Hence, pushing on, he, variously misled by mirage, named Mount Deception, and north of it fixed his depôt No. 2, near a hill called by him Mount Scott. At this spot the range broke its hitherto regular line. Here, in detached elevations, one branch went to the north-west. Leaving the rest of his party at the depôt, Eyre, with a black boy and one man to lead a packhorse carrying water, made a reconnoitring trip. He went westward over the plain and penetrated a distance into the bed of Lake Torrens, to be arrested by very wet mud. He ascended Termination Hill, and followed on to the rises of Mount Nor'-West and beyond, till this line of elevation again fell to very salt water at the continued margin of Lake Torrens, a distance of some 100 miles from the depôt. Having returned to his main camp and determined to see out the line of ranges extending north-east, he ascended and named Mount Serle, crossed a river, and called it Frome, and thence over two other creeks at the foot of the range, till it finally died out in a hill he sympathetically described as "Mount Hopeless." The expectation he had long indulged, that the Flinders Range might lead him into the far interior, having proved delusive, he returned, midst much suffering and difficulty, to the first depôt—to Mount Arden.

Disappointed at the unsuccessful nature of this north journey, he was still resolute in endeavor to work out better issues. Recruited and re-provisioned from the buried stores before left at this depôt, he determined to go westward to Streaky Bay, if perchance he might find some opening in that direction which might lead him into the much-desired far interior.

On the 13th September (he had left Adelaide on the 18th June) he moved all his party westward, crossed the boggy channel between Lake Torrens and Spencer's Gulf, struck to the southern end of a distant range, called by him Baxter's Range, after his station overseer, who was with him. Here was good water. He divided his party. Having started Baxter to pursue a course direct for Streaky Bay, he himself, with Mr. Scott, five horses, one dray, and one native, and one man, and fourteen days provisions, went south, west of Mount Middleback, and after much trial reached the Port Lincoln district. At Mr. Dutton's station they received Adelaide news. Two years later on Mr. Dutton, in attempting to take cattle from this station to the head of Spencer's Gulf, perished with all his party. It was supposed from want of water. The cattle only returned.

Fresh stores being required, Mr. Scott was sent to Adelaide for them. He sailed in a small cutter. Some sheep were purchased at a station of a Mr. Brown. This Mr. Brown was subsequently murdered by the natives. On the 5th October, at a station about a mile and a half from Eyre's tent, a little boy, twelve years old, a son of Mr. Hawson, was fatally speared by natives. On the 22nd October Mr. Scott arrived with needed stores. On the 28th October Eyre travelled westward. He passed by and named Lake Hamilton, after his friend the late Geo. Hamilton, long Commissioner of Police. He passed and named, from its shape, Mount Wedge. Then Lake Newland, after the late R. F. Newland, and Mount Hall, after the Governor's private secretary, and further on Mount Cooper, after the judge, Mr. (now Sir) Charles Cooper, and so reached Streaky Bay.

Lying at anchor there was the Government schooner *Waterwitch*, sent round with stores. Eyre sent on the *Waterwitch* in advance to Fowler's Bay, and, pushing on with his land party, he again met the cutter at Streaky Bay, and is supplied by her with water. He arranged to further meet the *Waterwitch* at Denial Bay, which Eyre reached on the 10th November. The cutter arrived the same day, and Eyre again obtained water from her. She was now

ordered on to Fowler's Bay, the land party still suffering much from want of water. The stores were here landed. Meanwhile Eyre, awaiting the arrival of stores, had seen the arid desert in flying trips to the head of the Great Bight, and being convinced of the difficult journey before him, resolved to reduce his party to be better able to push forward in further search, even to King George's Sound. He therefore sent the *Waterwitch* and two men of his party, and all drays, back to Adelaide, communicating his further design, and requesting that there might be sent him bran and oats for sustenance for his horses.

Although Mr. Scott desired otherwise, Eyre would not allow his young friend to be exposed to the hardships he clearly saw before him. He even gave his overseer, Baxter, the option of return. So at Fowler's Bay, on the 31st January, 1841, the cutter *Hero* (which had supplanted the *Waterwitch* in the conveyance of these last stores) sailed, conveying away for Adelaide Mr. E. B. Scott, and the only other white man of Eyre's party, except Baxter. The explorer and hero, Eyre, was left. Himself, the faithful Baxter, and three black boys alone remained. There they camped, cut off from all further supplies and all chance of communication with help, if needed. The one leading idea of discovering a channel opening into the far interior must have been abandoned by Eyre before he resolved upon this last reduction of his party. None but the faintest hope, if any, could have lingered. Both Nuyts' and Flinders' recorded examinations of the coast must have confirmed this conclusion. Yet Eyre would not surrender. He must see with his own eyes, and travel with his own feet every inch of the more than 800 miles which yet severed him from King George's Sound.

Awhile they rested to feed up the horses destined to pull along with them the remaining stores their own lives depended on.

In 1857, sixteen years afterwards, when His Excellency Sir Richard MacDonnell landed from the Government schooner *Yatala* at Fowler's Bay, and walked across the saltbush

pipeclay flats at the back of it, I being with him, we came on distinctly-marked draytracks, and followed them some distance; for we could but conclude that these were none other than the tracks of Eyre, which, in that arid climate, time had not effaced.

On the 24th February, when burying surplus stores in preparation for departure on the forward journey, the cutter *Hero* re-appeared. The Governor had sent Mr. Scott back with letters urging Eyre to return to Adelaide; but Eyre's determination to proceed was immovable, and on the 25th he finally bade adieu to Mr. Scott, and went his way.

Often in dire thirst, and exhausting travel, over sandy grounds, and through dense scrubs—driven to abandon baggage, and to extract water from roots—to send back for buried stores—to kill a horse for food—suffering painful illness caused by bad food; and harassing anxiety, increased by the disaffection of the native boys, who steal provisions, then desert, only to return in a state of desperate starvation—and then, at night, when the overseer is asleep and Eyre away taking his turn to watch the horse, two of them, arming themselves with guns, steal food; the overseer, poor Baxter, waking up, they fatally shoot him and make off, armed.

Eyre heard the firing and hurried to the camp. He writes, "I met the King George's Sound native, Wylie, running towards me in great alarm, and crying 'O massa, O massa, 'come here.' I found my overseer weltering in his blood, and in the last agonies of death. He expired immediately afterwards. He had been shot through the breast with a ball."

The incident was overwhelmingly frightful. Eyre's position appalling—he was tempted to wish the fate of his faithful overseer had been his own. In the dead of night, in the wilds and most inhospitable wastes of Australia, a fierce wind raging, he was left alone, save one native boy, on whose fidelity even he could not rely—who, for aught he knew, might be in league with the others to take his life. Three days had passed since they left water, and he knew not where more might be found. Six hundred miles had

yet to be travelled before he could hope for aid. Seizing the remaining arms with some ammunition, Eyre, accompanied by the native, Wylie, hurried from the frightful scene of the camp to search for the horses, knowing that if they got away no chance would remain of saving life. Eventually finding them, they watched them through the remainder of the night. "Ages," says Eyre, "cannot efface from my mind "the horrors of that night."

With daylight, they wrapped the body of the overseer in his blanket, and there left it, for there was not sand enough on the hard limestone rock to permit its burial. They hastened from the dreadful scene. Forty pounds of flour was their only provision left; all else was abandoned save charts and maps. Before starting, the two murderer natives appeared, and tried to gain over Wylie. After a short time disappeared, and were never more heard of.

The two travellers were now reduced to live chiefly on the flesh of their horses, which they cut into strips and sun-dried. At length, when exhaustion and exposure, famine and anxiety, were near closing their lives, and to reach King George's Sound appeared impossible, a whaling barque was sighted off the coast. They were saved! After being housed and recruited for some weeks and re-clothed, they ultimately arrived at King George's Sound in July, 1841. Over twelve months had passed since they left Adelaide.

The early ardour of the Adelaide colonists to penetrate the mysteries of Central Australia was not quenched by the repulse of Eyre's daring, hard-fought efforts. The north terminal outshoots of the Flinders Ranges had landed him in salt swamps; and the 1,500 miles of travel along the coast line from Port Lincoln to King George's Sound had failed to offer him the hoped-for watercourse leading to the desired goal in the north. Yet, a further effort must be made, and after a short repose, Captain Sturt took command of a party for this purpose. Dr. John Harris Browne, a friend and an independent settler, was willing to accompany Sturt. John McDouall Stuart was draughtsman, Mr. James Poole assistant surveyor; the entire party, sixteen in number.

Sturt could well, and wisely did, avail himself of an advanced base line, which his former explorations rendered familiar to him; the fresh waters of the Murray and the Darling taking him as far north as the 30th latitude, from which to start, and on which, in case of need, retire. And so the early part of his journey would be not only free from anxiety, but also afford the opportunity of intercourse and company; and would profit by the influence amongst the native races on these rivers already gained by Eyre, now resident at Moorundi, and who was distributing for the colony the protection, food, medical aid, and clothing South Australia was then providing, justly and humanely, for her aborigines.

Sturt's party left Adelaide in August, 1844, and went by Moorundi, by Lakes Bonney and Victoria, and across the Rufus to the junction of the Darling; and followed up the river to Laidley's Ponds, camping on the junction of a small river called the Williorara. There he pitched his first camp of observation. An opinion had been formed that north from the swampy saltflats which had arrested Eyre's advance, along its entire front from the termini of the Flinders Ranges, would be found a parallel range of high lands, whose drainages contributed to that apparently boundless swamp. And since elevated country had been seen in the direction whence the small river of Williorara came, that being north-west from Sturt's Darling camp, and so in the line to the north of Mount Hopeless, whence Eyre had retired, it was possible in that direction the truth of the opinion quoted might be tested. The examinations of advanced parties favored the supposition, and Sturt moved his camp on to Lake Cowandilla. Beyond that he, by degrees, worked into and over the Barrier Ranges, till then unknown; and, descending these, an examination was made of ocean-like plains beyond till he came to the sandy ridges on the south-eastern edging of the Mount Hopeless swamps. Distressed for water and pasture, he retired to the Barrier Ranges, and, by degrees, with much difficulty, under intense heat by day, and often perishing cold by night, and constant short water supplies, worked his party on to a detached series of flat-

topped hills with some better country, more pasture, and deeper waters in a locality he called Rocky Glen, where he hoped permanent water might be found in the event of drought and barrenness cutting his party off from his base of operations. It was now the 27th January, 1845, when the tents were pitched at this depôt. They were not again removed till the 17th of July following. Why, the sequel will tell. In this spot they were to be as effectually imprisoned as if they had wintered at the pole. This is Sturt's own expression:—"Examining all the surrounding country, it "was clear that Providence had, in its all-wise purposes, "guided us to the only spot in that widespread desert where "our wants have been permanently supplied, but had there "stayed our progress into a region which almost appears to "be forbidden ground." One morning, riding out with Dr. Browne, a number of small black spots appeared in the upper air, and several hundreds of kites, with open beaks and spread talons, swooped down upon them—fortunately they avoided contact by throwing themselves back when within a few feet. At this depôt the heat was too great for Sturt's mapping—the ink dried up on the pen—till by excavating a chamber in the earth the work could be carried on. No rain fell for six months; the water at the depôt gradually dried up; harassing trips to find a way out all failed; no water was left around them; animals and birds left the scene; vegetation shrivelled up; scurvy and mental depression seized the party, and James Poole was dying. On the 12th and 13th June rain fell—water ran in the creek, pools covered the face of the country. The party was divided—one part was to return to the Darling and Adelaide, the other to push over more north-west.

On the 14th the homeward party started, but on the 17th an attack of internal hæmorrhage killed Poole, and his body was brought back to the depôt and there buried at the base of a grevillea tree—on whose trunk was inscribed "T. P., "1845." A rude pyramid of stones also marked the spot. The two parties again separated. At fifty miles further N.W. a new camp was made, and from it Sturt, with Browne and

three men, started, bearing right down on the centre of the continent. Shortly all before them was desert—one view of reddish-brown sand on to the horizon. This was succeeded by an ocean of solid billows of sand, 50ft. and 60ft. high, in endless uniformity. At 200 miles from the depôt these came to an abrupt termination, and Sturt's Stony Desert lay before them. Neither herb nor shrub was visible. Thirty miles on came an immense plain of clay, but no vegetation, no water; gaping fissures—then the tall sandridges re-appeared. At length a little creek (Eyre's Creek) and water cheered the party, and a little horse feed. This creek soon died out in another desert. They were now 400 miles from the depôt; men and horses were exhausted, no change could promise relief ahead. They fell back on Eyre's Creek, and with its assistance ultimately regained the depôt, but in sad exhaustion.

Here they rested awhile, when Sturt and two men started afresh. After some days they reach a pastoral country, with a fine creek flowing—Cooper's Creek. A further journey of 200 miles and the Stony Desert was again before them, and no prospect of a change visible. Too exhausted to face this, they retired towards Cooper's Creek—their nearest halting place. Horses fell, and were relieved of their burdens. It was a journey for life or death, and working on night and day they retreated. Hot winds and drifting sand distressed them fearfully. Eventually they reached the depôt, Sturt crippled by scurvy, all weakened by sickness and over-training exertions.

Another summer was now approaching, and immediate advance might prove their only chance of regaining the Darling. It was doubtful even if yet the way was open. Magnanimously Browne proposed to go ahead and see. Unless Flood's Creek, 150 miles away, had water, they knew not where to look. A bullock-hide water-bag was made, and, filled with water, placed seventy miles ahead, and Browne started with thirty gallons more in a light spring-cart. On the eighth day after he returned. "There is still water in the creek, though black as ink." A bed of leaves is placed in the cart, on which Sturt may lie; the whole party

retreat. They reach the inky water, and, through its aid, the Darling; and ultimately—nineteen months having passed, and Sturt supposed dead—they safely, though in a wretched condition, arrive at Adelaide.

Whilst Sturt was struggling to reach the centre of Australia, Ludwig Leichardt left Sydney on the 13th August, 1844, for Moreton Bay, and passing through the Darling Downs entered the unknown regions beyond, and found a splendid country all the way to Port Essington, which, with his party, was reached on the 17th December, 1845. When south of the Gulf of Carpentaria their line of travel was near the shore. Their condition on reaching Port Essington is described as having been “ragged and famished, with no stores but a few steaks and dried strips of their last bullock.” Leichardt remained one month at Port Essington, and returning to Sydney by sea, received a well-merited welcome and reward.

His love of exploration, however, was not to rest content with the good work he had thus accomplished. Of simple habits of life, and strong devotion to the pursuit of geographical knowledge, and great powers of perseverance and endurance, his projects for indulging in them were drawn on a large scale. He would cross the continent at its widest expanse. In April, 1848, he left Sydney with a large party under his command, and they were well equipped. He made direct for the Barcoo River. It is asserted he passed beyond the Barcoo, when he found its course tended southwards. Gregory, in ten years afterwards, at the 146° of longitude, found a tree marked L, on a tributary of the Barcoo, on its western side, called the Thompson River. The season of his presence in this quarter would be summer, and as no trace of him or his party has since been obtained, the suggestion arises whether they may not all have perished in some part of that hot and stony, waterless and pastureless, country largely penetrated by Sturt at the near loss of the lives of his party.

The fate of brave Leichardt and of his companions, over which the veil of thirty-six years is now spread, without one

trace to indicate its nature, or where or how it happened, fills the saddest page of Australian exploration. Is its discovery in whole or part beyond accomplishment? All Australia owes to the memory of the lost an effort towards the revelation.

From the physical formation of the continent of Australia, the most remote drainages into South Australia from the north-east rise far within the tropics of Capricorn, westward from Bowen. These first constitute a river called the Thompson, which, near the tropic, pours its waters into another river, the Barcoo, whose augmented stream runs, after many hundred miles, into Cooper's Creek.

The discovery of this lengthy river, the Barcoo, is due partly to Sir Thomas Mitchell, who for twelve months—from December, 1845 (having Edward B. Kennedy as assistant surveyor), had examined a large area of country west of the Darling Downs, finding and naming the Victorian River, the main branch of the Barcoo. On his return to Sydney, his assistant, Kennedy, was charged with the command of a party to first follow the course of this Victoria River; and, secondly, to go up the River Warrego with the view of opening up a route to the Gulf of Carpentaria. The first part of this work was performed by Kennedy in 1847. He then followed down the Barcoo to near the boundaries of South Australia—indeed, to where it entered Sturt's desert region. Kennedy found and named the Thompson River; and Mitchell's Victoria and the River Barcoo were proved to be identical with Cooper's Creek.

In 1846 Mr. J. A. Horrocks, of Penwortham, organised a party to explore north of Lake Torrens. He had the only camel then in the country, which was imported by him. His line of travel over the Flinders Range is marked by the pass still bearing his name. After a time he reached Eyre's old camp at Dépôt Creek, there to rest until by trial rides he discovered the best onward route; but a sad end came to his journey at this camp. On the morning of the 26th August, 1846, while loading the camel for departure, his gun, carelessly slung across his shoulders, went off, and discharged its contents full in his face. His frightened companions rapidly returned

for medical aid; but, five days after the accident, poor Horrocks died at the early age of twenty-eight years.

Concurrently with Leichardt's departure, in 1848, on his fatal expedition, another, with scarcely less fatal results, was undertaken in New South Wales. It was sought to open an overland route from Rockingham Bay to the head of Yorke Peninsula, at that time wholly unknown. This duty was confided to Kennedy, not long returned from his discovery of the Barcoo River. He went by sea to Rockingham Bay. A botanist and naturalist were of his party, also nine men and a native boy, "Jacky Jacky." A colonial schooner was to meet them at Port Albany, close to Cape York. For months she lay there, yet no signal from the shore announced their arrival. At the end of six months, the signalman drew the officers' attention to a strange appearance on the sea shore. A native, naked and emaciated, was seen to crawl out from the dense woods which overhang Cape York. Gaining the beach, he waved a green bough in the direction of the schooner. He proved to be the boy "Jacky Jacky," at death's door from wounds and hunger. For fourteen days he had tasted nothing but water. He had used his clothes to bury Kennedy. After Kennedy had landed at Rockingham Bay, the direst calamities had befallen his party. Through dangerous swamps, under distressing heats, through tangled woods in which their progress, under use of saw and hatchets, seldom exceeded more than a mile or two in the day—for four months were they literally cutting their way through thickets. Provisions had failed, all their horses were eaten when as yet Cape York was 200 miles away. The men, through illness and famine, and exhausting toils, became too feeble to proceed. Kennedy left eight of them camped near the sea, at Waymouth Bay. With three of the strongest, and the native boy "Jacky Jacky," Kennedy set forward to secure assistance from the schooner. After some days travelling, one man got dangerously injured by the explosion of a gun, and leaving the other two to protect him, Kennedy and the boy hurried on. A savage tribe was on their tracks, and got ahead of them. At Escape River a shower of spears

Mr. J. A. Horrocks' Camel Party.

fell on them, and both were wounded—Jacky in the face, and Kennedy in the back, leg, and sides. He fell, rose again, fired his gun, then fell again. Jacky stood over him, with his gun cocked. His gun missed fire, but he still covered the savages. Kennedy's aim had been true, and one savage lay writhing in the agonies of death. The rest drew off, and peered from behind the trees in the distance. Jacky carried his master through a belt of scrub to a stream of water. Kennedy told Jacky he was going to leave him, and that Jacky should take his papers to the captain of the schooner. Jacky tied up the papers. Kennedy asked him for paper and pencil that he might write. Jacky did so. Kennedy tried to write, but fell back and died. Jacky buried the body, and then kept watch till dark. Under cover of night he slipped silently into the stream and waded up its channel, his head alone above water. From Escape River he crept through the silent woods till at length the schooner was reached, as above detailed.

The captain, having heard his story, at once got under weigh in all haste to relieve the remainder of the party. Jacky pointed to where the wounded man and his two protectors had been left. None of them were found. All sail was then set for Waymouth Bay, where the eight men had been left. A European was seen sitting on his pitcher by a well. They hastened to him; he was quite dead. They found the camp. Five bodies were lying on their beds; two beds were vacant—their owners were away fishing. They had seen the schooner, and now staggered back to the camp, mere skin and bone, too weak to bury their dead companions. The survivors were the naturalist Carron, and Mr. Goddard.

In 1848 the Western Australians were active in explorations. Surveyor-General Roe, who had been with King on the northern coasts, commanded a party of six men and eleven horses, and examined the country inland from the first 300 miles between King George's Sound and Cape Arid. He penetrated to a high land called Russell Range, and returned by Esperance Bay—in the course of which much

hardship was endured. At the same time, under Mr. A. C. Gregory, a further party was dispatched to the Gascoigne River, spoken highly of by Grey. On the Murchison River, which he discovered, he found galena. He visited Sharks Bay. He reached latitude 27° , 350 miles north of Perth. Near Champion Bay and Arrowsmith River he found fine pasture and rich arable lands. The party had travelled 1,500 miles in ten weeks.

The discovery of galena, afterwards called the Geraldine mine, induced the Governor of the Colony (Governor Fitzgerald) to visit Champion Bay by sea; and the galena was traced 350 yards along the bed of the Murchison, as a solid mass averaging 12in. thick. On returning, some fifty natives surrounded them in an acacia thicket. The natives threatened an attack with spears, one raised a club, a spear was thrown. The Governor fired and killed the foremost; then a shower of spears followed, and one passed through the leg of the Governor above the knee.

In 1851, with the view of testing the truth of a current opinion that Sturt's central desert constituted a complete barrier to further efforts in the North of South Australia, Oakden and Hulkes started from the head of Spencer's Gulf and explored a great deal of country to the west of Lake Torrens. It was a private expedition, in search of pastoral country—which they found. The diversion of settlement and occupation, consequent on gold discoveries, prevented their revisiting and occupying this country.

Anxiety as to the fate of Leichardt's party, now unheard of for about three years, induced a light party under Mr. Hely, in 1852, to follow on Leichardt's supposed tracks, and to test the statements gathered from various natives as to the fate of Leichardt. The search party went to the Warrego River. Here native women reported that, four days in advance, the locality of the massacre of the men of Leichardt's expedition would be found. Hely could not find what would verify this tale. Ten miles lower down he found an old camp, marked L, with the letters X V A cut inside it; tent poles, and forks, and heavy cut saplings indicated the camp.

Mr. A. C. Gregory.

44

Shortly after he found similar letter marks on a camp upon the Neville Creek, of Mitchell, after which Hely retraced his steps.

In 1855 a fresh spirit of exploration rose above the prevalent absorbing attractions of search for gold, and to Mr. A. C. Gregory was given the command of an expedition to examine the course of the Victoria River, in the Northern Territory, which had not been visited since the time of Stokes. Except the Murray, it was the largest known river in Australia. His party consisted of eleven, including Dr. (afterwards Baron Sir F. von) Mueller, the celebrated botanist, and Mr. Wilson, a geologist. They reached the head of the Victoria, in latitude $18^{\circ} 12'$. Here a dividing range crossed their track, and the watershed lay south. They followed a creek bed, called by Gregory Sturt Creek, 300 miles. It ended in salt lakes, beyond which it was thought useless to penetrate. The desert in view looked impracticable, and no rain seemed to have fallen for twelve months. On return, Gregory explored towards the Gulf of Carpentaria to the Albert River, and thence on to Brisbane.

While Gregory was thus descending from the Gulf of Carpentaria to Brisbane, Babbage, in South Australia, was sent to look for gold to the north of Adelaide. In this pursuit gold did not reward his efforts, nor was the area of country examined very extensive; but he found some good springs and some well-grassed country.

In 1857 Mr. Goyder, the Surveyor-General of South Australia, went north to the districts discovered by Babbage, and their neighborhood, for the purpose of making a trigonometrical survey. He penetrated to latitude 29° , and examined some thirty miles of Lake Torrens. He discovered the Reedy and Rocky springs, in the vicinity of Lake Blanchewater.

About this time Mr. Stephen Hack, with five men and twelve horses, was sent to Streaky Bay, and explored the Gawler Ranges. Some of the country Hack described had, in the same year, been already seen by Major Warburton, who, in June, 1857, traversed the Gawler Ranges. In the same

year Bede Creek, west of Lake Torrens, was found by Mr. Campbell, and Pernatty Creek and Andamooka were found by Messrs. Swinden and others.

In 1858 A. C. Gregory headed an expedition in search of Leichardt. He travelled down the Barcoo to Cooper's Creek, and arrived in Adelaide July 31st. The tree marked L, previously mentioned, was found, but no other trace of Leichardt. He was seven months so employed.

In May, 1859, John McDouall Stuart started from Adelaide on his first expedition into the interior, and explored in the country about Lakes Eyre, Gairdner, and Torrens. He also visited Chambers' Creek.

On March 2nd, 1860, Stuart again made for the interior; finally starting from Mr. Aleck Glen's station, Leigh's Creek. On the 6th April, about latitude 25° , near the River Finke, he found an immense monolith of sandstone, 150ft. in height, and which he called "Chambers' Pillar." Two and a half degrees further north he reached a mountain near the centre of the continent, and this he named "Central Mount Stuart." Upon it he planted the British flag. Thence, after vain attempts to advance in the face of great hardships, he fell back upon his tracks and returned to Adelaide.

In 1860 an expedition to cross the continent was organised in Melbourne, under the command of O'Hara Burke. He had Wm. Jno. Wills, of the Melbourne Observatory, as surveyor, and, of eleven others, were William Brake, John King, and Charles Gray, and one Sepoy, and two natives. Leaving Melbourne on the 20th August, they proceeded by Meningie, on the Darling, to Cooper's Creek, and formed a dépôt. Here Burke divided his party. Taking Wills, King, and Gray, six camels, and one horse, he decided to push on to the Gulf of Carpentaria; the other division of three men, six camels, and twelve horses, was to guard the dépôt with its provisions, and wait the return of Burke. All were in good health. On the 16th December, Burke's division started. Its line of travel was direct and rapid. On the 12th February, 1861, Burke reached the tidal waters of the gulf; swamps prevented a sight of the open sea, and provisions failing, they next day

Mr. John McDouall Stuart.

10

commenced the return journey. Its line went more east, and striking south to the neighborhood of the Thompson River, followed abreast of its juncture with the Barcoo, itself being Cooper's Creek, but some three degrees north-east of the depôt. The flesh of three camels and one horse, and native portulaca, helped to save them from absolute starvation. Latterly, two walked and two rode. All were exhausted and ill as they neared the depôt, and Gray died within four days of it. In extreme debility, the survivors reached the depôt on the 21st of April, but, alas! only to find the camp deserted, and that but seven hours previously—Brake and his relief party had left, and taken the provisions with them! Weak and travel-worn in the last degree, the preceding hours and days of hope and exultation at the prospect of speedy and certain relief were all crushed at this bitter moment. Seven hours departure only. Relief was still within call had life enough remained in one only to have moved to it—that failing, all was hopeless. Our imagination may picture the scene of utter sadness and destitution; it cannot be described. Though kindly aided by some aborigines, Burke and Wills, at the end of June, died miserably of starvation. On the 16th September Alfred Howitt, in charge of a search expedition, found King, and buried the remains of Burke and Wills.

Elsewhere human sympathy had been aroused to action on the apprehension that dire calamity had overtaken Burke; and Landsborough, Walker, and McKinlay respectively headed relief expeditions. Each of these leaders travelled over large areas of previously untrodden country, and made geographical discoveries, afresh traversing the continent. Landsborough left the Albert River, Gulf of Carpentaria, descended on the Barcoo, and thence to Melbourne. McKinlay, from Adelaide, after reaching Cooper's Creek, went north, and most expeditiously and successfully crossed to the Gulf of Carpentaria. He returned by way of Port Denison (Bowen). Walker started from Rockhampton, attained the gulf, and reached home safely.

On November 29th, 1860, John McDouall Stuart, with

seven men and thirty horses, commenced his fifth expedition. Parliament voted £2,500 towards its cost. The achievements of Stuart's late expedition had induced this recognition of his services. With two companions, Kekwick and Ben, he had discovered Chambers' Pillar, Central Mount Stuart, the MacDonnell Ranges, among many other physical marks of nature, in mountains, creeks, and rivers; and, in doing this, had penetrated up to 18° of latitude, where, attacked by natives, stores exhausted, men weakened by hard toil, and horses in bad condition, and the party too small to cope with hostile natives without risk of destructive loss, Stuart had felt compelled to retire. On the previous 10th of August of this year the ill-fated Burke and Wills had left Melbourne for the Gulf of Carpentaria.

On December 1st Stuart and party arrived at Mr. Alexander Glen's station, Leigh's Creek; and on the 12th reached Chambers' Creek Station, where they remained to the end of the month, drying beef, and generally setting up their travelling equipage and camp supplies.

With William Kekwick, second in command (he had been a faithful and efficient companion of Stuart in the previous expedition), F. Thring, third officer, and nine others (in all, twelve men and forty-nine horses), Stuart thence started from Chambers' Creek on the 1st January, 1861. On the 8th January, five of his horses proving more trouble than they were worth, he determined to send them back, and, with them, two men, to whom a month's provisions were issued. Thus his party remained ten men and forty-four horses. By the 24th April he had reached "Attack Creek," the farthest point of his previous expedition. From this he advanced about two degrees further. Some fine country was discovered—"wide grassy plains," with deep alluvial soil, and named by Stuart "Sturt Plains." They lay to the west of a long range, the "Ashburton," named after Lord Ashburton, the President of the Royal Geographical Society. Stuart, with an advance party, unable to see any rising ground to the north-west, thought this plain might lead him to the River Victoria; but water was scarce, and his

Chambers Pillar, Central Australia.



horses exhausted over the dry and treacherous plain, and he deemed it madness to proceed. Under these circumstances, the party kept along the Ashburton Range, going northwards. On the 25th May they came on the Newcastle Waters, and followed it nine miles, whence it became a chain of ponds. On the 13th June Stuart moved his camp to the east of Charlotte Waters. With three of his men and a month's provisions, he started thence to reach the Gulf of Carpentaria. Open plains, of black alluvial soil, covered with grass, but with deep holes and cracks, into which the horses were continually falling on their noses and threatening the necks of the men, impeded progress. Thickly-wooded country, difficult to penetrate, came after the plains. No water could be found, the lives of both men and horses were endangered, and their energies exhausted. Stuart, therefore, returned to camp. By going south and rounding the thick forest seemed to Stuart his only chance, failing which, he must return. He did fail, and he returned to Adelaide on the 23rd September, 1861. At this time the Victorian Government obtained their first traces of the sad end of Burke and Wills.

In less than a month Stuart, nothing daunted, was again, for the sixth time, at the head of an exploring party. The continent must be crossed. The names of his party were as follows:—William Kekwick, second officer; F. W. Thring, third officer; W. P. Auld, assistant; Stephen King, John Balliatt, James Frew, Heath Nash, John McGorrerey, shoeing smith; F. G. Waterhouse, naturalist. The party reached Finnis Springs on the 29th December, 1861. First at Marchant's Creek, and again on the plains near Mount Hay, hostile natives attacked them. On the 12th March the centre was passed, and on the 28th Stuart, for the third time, found himself at Attack Creek. On the 5th April he camped a second time at the east end of Newcastle Waters. A week's rest now refreshed the party for coming struggles.

After many ineffectual advance trips, Stuart now proceeded northwards, and, fortunately, found waters. The

weather was excessively hot, and natives were numerous. He reached Daly Waters on the 29th May. Hence advance parties made frequent examinations for a practicable route ahead, and on 10th June the camp was shifted to Purdie Ponds. On the 27th of June the Roper River was reached, and, on the 9th July, the Katherine. Soon they mounted table-lands, with splendid stringybark trees, when fan palms were first seen. The views were beautiful as they approached the margin. A deep creek and running stream were before them at the foot of the precipice. Descending with difficulty, they followed the creek for about two miles, and camped on an open space. The grass was 4ft. high; the cabbage palm grew beside the creek. The cliffs, from the camp, seemed to be 250ft. to 300ft. in height. Beyond doubt, says Stuart, we are now on the Adelaide river. The party followed on its course, over beautiful alluvial soil and magnificent vegetation, amongst which were clumps of large bamboo. Advancing, they encountered a marsh when, as Stuart considered, he was but eight miles from the sea coast, and, to avoid the marsh, he struck due north. At $8\frac{1}{2}$ miles they came upon a broad valley of black alluvial soil, covered with long grass. A line of dense bushes was before them, at which the horses were stopped to clear the way. Advancing a few yards, Stuart, delighted, beheld the Indian Ocean, in Van Diemen's Gulf, whilst Thring, like Cyrus's Greeks, called out, "The sea." And so, on the 25th July, 1862, on the shore of Van Diemen's Gulf, to which, through indomitable perseverance, Stuart and his party had at length penetrated, was this day cleared an open space, and the tallest tree having been stripped of its branches, the Union Jack, with Stuart's name in its centre, was fixed at its highest point, and lusty cheers were given to H.M. the Queen, H.R.H. the Prince of Wales, and by his party to Stuart himself.

Further, at 1ft. south from the foot of the tree, and 8in. below the surface, was buried an airtight tin case, containing the following statement:—

South Australian Great Northern Exploring Expedition.

The exploring party, under the command of John McDouall

Mr. William Kekwick.

Stuart, arrived at this spot on the 25th day of July, 1862, having crossed the entire continent of Australia, from the Southern to the Indian Ocean, passing through the centre. They left the city of Adelaide on the 26th day of October, 1861, and the most northern station of the colony on the 21st day of January, 1862. To commemorate this happy event, they have raised this flag bearing his name. All well. God save the Queen.*

The signatures of the party then follow.

By the 5th December the explorers were safely back at Chambers' Creek.

Stuart's explorations helped to prove that the interior of the Australian continent was not so wide and barren a waste as previous opinion and investigations had induced the world to regard it.

* TRIP OF THE HON. J. L. PARSONS UP THE ALLIGATOR.—The Minister of Education has received the following telegram from the Hon. J. L. Parsons, Government Resident, Northern Territory, dated Port Darwin, October 20th:—
 "Returned safely. Ascended South Alligator river over 30 miles in the s.s. *Palmerston*, East Alligator, 15 miles in the *Palmerston* and 20 miles more in the launch. The land is much the same as on the Adelaide River Plains, with jungles and pandana flats. The jungles are limited in area, and sandy. All the plains can be easily drained. Reports will follow by Messrs. McMirn and Holtze. Stuart's tree, marked J.M.D.S., was found to be almost exactly where it is placed on the map accompanying his report. The report itself is strikingly accurate in the description of country and flora as now, except that he uses the word 'valley' instead of 'plain.' The tree was surrounded by undergrowth, and without the Woolna native would not have been found, although it had been visited and reported upon by Surveyor Hingston and party two years ago. The tree is about 50ft. high, and the splendid Crown letters are almost filled up with new bark, but are distinctly visible. Mr. Forlsche took six photographs of the tree. Mr. McMinn, with four hands, ran out Stuart's bearing south to coast, hoping to find the tree on which the flag was planted, and where the case containing the document was buried; but the result did not coincide with the description. Instead of open beach, he came to dense mangroves. Mr. McMinn examined every large tree upon the west side of the point, but failed to discover the case. He then made a survey of Stuart's Point, and built a mound on the Open Beach Cemetery, the same with the tree discovered. Great credit is due to Mr McMinn in connection with this tree. For years he has gathered information from natives, and by aid of one of Hingston's party he first found it. An old man of the Woolna tribe says the tree where the flag was hoisted has fallen down. The natives who were with us have gone to find this old man and look for the tin case where the tree stood. If successful, they will bring it into Palmerston next week."—*Register*, October 22nd, 1885.

From the north-western portion of Australia Frank Gregory had, in 1861, endeavored to penetrate the interior, but was baffled by the arid sand ridges, amidst which he and his party nearly lost their lives. However, he thus discovered extensive rivers, of which were the Fortescue, Ashburton, De Grey, and Oakover.

In 1865 McKinlay was again sent exploring. The party under him consisted of Mr. R. H. Edmunds, surveyor; Mr. Thomas Glen, a bushman, and a brother-in-law of McKinlay; eleven men, and forty-five horses. From Adelaide they went by sea to Escape Cliffs, Northern Territory. Their duty was to explore in the country thereabouts, and the neighborhood of a locality called "The Narrows," as preliminary to the proposed survey of township and country lands. They left Escape Cliffs on the 14th January, 1866. On the 2nd February they reached the fork of the Adelaide River, 120 miles. On the 5th, started again. The ground was soft and treacherous, and progress slow. Tropical rains deluged them. For six weeks were they thus shut up in one spot, a little hill, fortunately, above the surrounding floods. Their horses starved, their own provisions damaged or consumed, horseflesh alone was left, save as aided by an occasional kite, or lizard, or snake. Nineteen horses were poisoned. All the party were exhausted—they could hardly now walk. In this position of desperation, McKinlay, in consultation with his companions, decided to kill the remaining horses, jerk some of their flesh for food, of the hides construct a raft or boat; and, floating across the waters and down a stream, eventually called the East Alligator, through many perils, the explorers' lives were saved.

The construction by South Australia of the Port Darwin overland telegraph line directly encouraged exploration. From Chambers' Pillar Ernest Giles, in 1872, struck north-west, and found country barren and sandy and scrubby, not less the desert it had been supposed to be. Going south, his progress was arrested by the muddy flats of Lake Amadeus. In 1874 he pushed as far as the Sutherland Mountains.

Giles' character was brave, of indomitable energy, great

Mr. F. O. Gregory.

Mr. McKinlay.

Mr. Ernest Giles.

endurance, combined, like Sturt, with great kindness of heart, as evidenced in the following statement:—When, on 23rd April, Giles was reaching the furthest limit he could attain without finding water, ninety-eight miles west from the last water, his man Gibson's horse knocking up, Giles at once returned upon his track. Scarcely two miles were passed, the horse refused to carry his rider further. We drove him, says Giles, on foot for another mile, when he lay down to die. His own horse, "Fair Maid of Perth," was only too willing to return. She now had to carry everything, and, riding her by turns, we pushed on as fast as we could. When back to within thirty miles of some keg water, which had been planted, we each took of the last drop—a mere thimblefull for each—of our water stock; Giles said to his man Gibson, "Ride right on, get to the kegs to-night, water the mare, give her two hours' rest, stick to your tracks, and move on to the Rawlinson Range (where Mr. Tietkens, his companion, was camped), and I depend on you to bring me relief." Giles walked on till dark, choking for want of water, and could not sleep for thirst. At daylight he moves forward on the track, and reached the kegs at mid-day. Gibson had left him $2\frac{1}{2}$ gallons of water. He preserved life on dry horseflesh, uncooked, not daring to use water for boiling. Unaided, he was now sixty miles from more water, and eighty from food. Taking the keg on his back, and weighted in all to 50lbs., Giles moved on. As long as water lasted he averaged five miles a day. On the second day all his horseflesh had gone. No Gibson came with relief. As afterwards was revealed, he had mistaken tracks, and was heard of no more. Giles struggled on, chiefly in cool of moonlight. He would fall insensible at times, then, reviving, struggle on (hope of relief kept him from despair), till, on 29th April, he gained the water. Here he picked up a small dying wallaby, thrown out of its mother's pouch; he ate it raw. So, on 1st May, he reached the camp.

It may be rightly said that the Forrest family of Western Australia has notably contributed able and successful explorers in the field of Australian geography. One of these

gentlemen, Mr. John Forrest, has, on three separate occasions, added much to our knowledge of the country we severally colonise. In 1869 he was given the leadership of a search party after the lost Leichardt. In this pursuit he travelled from Perth some 400 miles in a north-easterly direction, which occupied nearly four months. No traces of Leichardt's party were found.

In 1870 John Forrest, accompanied by his brother, Alexander, and four men, of whom two were natives, visited Esperance Bay, and continued along the coast, finding some of Eyre's tracks and camps, and reached Port Eucla on the 2nd July, and Adelaide by the 27th August.

In March, 1874, John Forrest headed a further expedition, which he successfully led from Champion Bay to the Adelaide and Port Darwin overland telegraph line, which was reached on the 27th September. In this journey they long had no sustenance but damper and water. The courage and perseverance of Forrest's leadership were recognised in high quarters.

In 1869 Mr. Goyder, Surveyor-General, in directing the survey of 500,000 acres in the Northern Territory (a work accomplished with his customary dispatch), minutely examined and reported on the features and productions of those lands in the neighboring districts.

Meanwhile, in 1872, the command of an exploring party was accepted by Colonel P. Egerton Warburton, its object being to cross the continent westwards from the Trans-Australian telegraph line. This expedition was organised at the joint costs of two most patriotic South Australians, Sir Thomas Elder and Sir Walter W. Hughes. A number of camels were provided for the purpose. So far back as 1866, Sir Thomas Elder had sent a special messenger to India, and had imported 121 camels. Of their services Colonel Warburton had had much Indian experience.

Warburton left Adelaide on the 21st September, 1872, *via* Beltana. On the 25th November Charlotte Waters were reached, and Alice Springs—the proposed final starting-point—on the 21st December.

to face page 94

Colonel Egerton Warburton.

111

4

22
23
24

Colonel Warburton was accompanied by his son, Mr. Richard Warburton, and Mr. J. W. Lewis, two Afghan camel-drivers, one camp cook, and one native lad (Charley). Their equipment comprised seventeen camels and six months' provisions. They started from Alice Springs on the 15th April, 1873. They reached Perth on the 25th March, 1874, and shortly after landed at Glenelg. The six months' provisions had been required to supply eleven months. Of the seventeen camels, seven had been killed for food, one had been poisoned, three left in the desert, unable to move on, four had been lost, and the two only which survived the desert were left exhausted on the DeGrey River. The diary of Colonel Warburton is detailed in the published volume of a "Journey Across the Western Interior of Australia" (London, 1876), and is full of interest. Baffled by the vast ranges of sandhills of monotonous succession, and fearful travelling ground, which had previously checked the advance of the explorers Gregory, on their descent from the River Victoria, in 1856, the party had further to sustain the discouragements of hostile country, the frequent tortures of thirst, and struggles against approaching starvation. One impressive observation the reader of Australian explorations must make, namely, that the prospects of success, or of relief from suffering, are immensely influenced by the physical nature of the country visited. Like Sturt, to the Murray mouth—like Mitchell, to the Glenelg River—like Eyre, to the Sound; or Leichardt, to Port Essington; or Burke and Wills and McKinlay, to the Gulf of Carpentaria; or Stuart, to the Indian Ocean, so Warburton performed the distinguished service of *perforating the continent through*. Like Eyre, in 1841, and Sturt, in 1844-5, it was his continuous bad fortune to have to contend with arid and inhospitable country, most wearisome and difficult to travel over; but also, like them, Warburton held on with bulldog courage, yet cheerful submission to hardships daily undermining health to a degree verging on the ebb of life; yet, with thanks felt and expressed to a kind Providence, he, as they, eventually surmounted all.

About the time when Warburton's last-mentioned journey began, the Government of South Australia were fitting out a party to examine the country between the River Finke and the Port of Freemantle, and the command given to Mr. Wm. Christie Gosse. The camels and three Afghans for this party were also provided by Sir Thomas Elder. His party consisted of five whites, three Afghans, with camels and a native boy. Gosse started from Alice Springs on April 23rd, 1873, and on July 19th discovered an extraordinary rock of granite, rising abruptly above the plain to the height of 1,100ft., 2 miles long, 1 mile wide. Here, in caves, like in the caves discovered by Sir George Grey in 1838, were numerous sketched figures on the wall, drawn in red ochre, of snakes and animals, and of two hearts joined together. Many springs were in the caves. He named this "Ayers' Rock," after Sir Henry Ayers. Gosse was subsequently made Deputy Surveyor-General.

In 1875 Ernest Giles was again in the field, and was completely successful in penetrating from South Australia. There were with him eight men, eighteen camels, and two native boys. Leaving early in May, their journey ended on the 10th November, when Perth was reached. On one stretch of desert no water was met with for 325 miles. Their camels, however, got through it. For the last month the party had mainly lived on the eggs of the mallee pheasant, of which some thirty to forty were daily found.

In 1875-6, under the leadership of Mr. W. O. Hodgkinson, Keyser, a surveyor, two white men, and a native boy, went from Brisbane by sea to Bowen, and thence to Georgetown, 1,100 miles north-west from Brisbane. From Georgetown they crossed by Taldora to the Cloncurry, and south-east on to the Diamantina, followed it southward to the boundary of the colony of Queensland, towards Lake Eyre. After a short spell in South Australia, Mr. Hodgkinson returned, connecting the point where Sturt was foiled in 1845 with Landsborough's explorations on the Herbert in 1862. The party was out sixteen months.

In 1876, after reaching Perth, Mr. Giles again traversed

Mr. W. O. Gosse.

44

Ayers Rock, Central Australia.

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40

the continent on a new route. On the 10th April he left the Pix Springs, and, on a north-east course, crossed the head waters of the Murchison river, passed Mount Gould, a hill of magnetic iron, and traced the River Ashburton to its source. Thence, striking south of east, came to his former camp in Rawlinson Range. He reached the Peake telegraph station on August 23rd.

From 1878 to 1882 Mr. Winnecke explored from Alice Springs to the Hay, the Herbert, and Tennant's Creek, going down to and north of Sturt's final point in 1845 (see Parliamentary Paper No. 121, 1882).

In 1878 Mr. H. V. Barclay explored much country lying north-east and east from Alice Springs. He discovered and named the "Plenty Creek" and the "Jervois Range."

In 1878-9 Mr. Favenc, for the *Brisbane Queenslander*, made a flying survey of the country between Blackall and Port Darwin. He and his party passed through much good pastoral and agricultural country, but suffered great hardships.

In 1879 Alex. Forrest successfully explored hitherto unknown lands in the north of Western Australia. Between the De Grey River and the sea coast he found magnificent sheep country. Subsequently, with a party of five white men and two natives, twenty-six horses, and six months' provisions, he explored the north-west. He discovered the course and source of the Fitzroy River, and other streams, with large areas of well-watered pastoral country. This country has since been called the "Kimberley" after the then Secretary of State.

In 1879 also Mr. Tietkens, second in command of Giles' party, from Fowler's Bay, examined the country thence towards the Musgrave Ranges.

In 1880 some portions of the west shore of Cape York Peninsula, Queensland, were explored by Captain Pennefather, of the *Pearl*. In the same year Mr. Jack, geological surveyor, of Queensland, examined portions of the peninsula itself, chiefly in search of gold. The natives were hostile; Mr. Jack was wounded by a spear. Heavy rains and other adverse causes distressed his party. No gold was found.

In 1881 the country in Queensland—the country between Roma and Blackwall, and on to Point Parker, in the Gulf of Carpentaria—was surveyed, in view of the construction of an overland railway. The rich pasturage and good travelling ground pleased the party. A light express wagon was driven the whole way, and the forty-five horses of the party were in good condition on reaching Point Parker.

In 1882 Professor Tate made an examination into the minerals, rocks, and plant life over portions of the Northern Territory. His interesting report is in Parliamentary Paper No 63, 1882.

In 1882 Mr. Giles explored the country west of the Peake; and Mr. McMinn, in the Northern Territory, the country surrounding the Rivers Mary, Wildenson, and Adelaide.

In 1883 Favenc and Nicholson explored good country from the Queensland boundary to Powell's Creek.

In the same year Mr. David Lindsay, for the Government of South Australia, started from Palmerston on an exploring trip to Arnheim Land. He travelled over 1,900 miles between July and December. His party suffered great privations, and had to live on horseflesh. The water-trees were of the greatest service. The country seen was, on the whole, well grassed, and splendid land for sugar on the banks of the Rivers Roper and Goyder. The natives were numerous and hostile. Four considerable rivers were met with—the Wilton, the Parsons or Rcass River, the Walker, and the Blyth (Report, Parliamentary Paper No 239, 1884).

Further, in 1883, Mr. W. T. O'Donnell, in Western Australia, explored the country of the Ord River, and reported the discovery of well-watered fine pastures over 300 miles of his journey.

In May of the same year Mr. W. W. Mills, with Mr. Charles Short as second in command, six Afghans, and thirty camels, started from the Peake Station for Northampton, Western Australia. During a journey of 1,600 miles they suffered greatly from want of water. Between the Warburton Range and Blyth watershed they crossed country which Mills considered might become magnificent pasture.

About the same time Mr. Winnecke, with a number of camels, successfully travelled over unknown interior. Starting from Cowarie Station, on the Warburton River, in latitude 28° , he penetrated north to latitude 22° , connecting with his previous explorations near Goyder's Pillars, in the Tarlton Range. For 200 to 300 miles the journey was over high sand ridges ere water was obtained. The camels had behaved nobly, each carrying 7cwt. or 8cwt. After two days' rest here, they made a second waterless stage of 150 miles. There were other equally long stages accomplished. Two large rivers were discovered, and 40,000 square miles of unknown country mapped (Parliamentary Paper No. 39, 1884).

In 1884 Captain F. Carrington reported to the Hon. J. L. Parsons, Government Resident, Northern Territory, on a voyage taken to the south-west shores of the Gulf of Carpentaria, and his examination of the McArthur River and its sea approaches. This report will be found amongst Parliamentary papers.

And here end our records of inland discovery. They reach the end of the year 1884. I fear you are wearied by it, and I must trust to your magnanimity to soon cast off any unpleasant reflections; but we have seen (though most imperfectly lined out) how, in a few years, a continent has been first trodden. Then how, when once started, the energies of the bold and brave of our race have threaded, like a network, their paths of investigation into its nature, and thus have paved the way to great settlements of population, production and trade, by which we and the world are benefited. And, as we see the amount of area of Australia thus unveiled to us, we also see blank spaces of varied magnitude waiting discovery. Hence, to construct a repository to save from oblivion, and store for public service, the acquisitions of the past, and to influence for good all movements promotive of geographical knowledge in the future—these are the grounds we trust you will approve as commanding your warm support of the institution we at this hour commend for your adoption.

THIRD GENERAL MEETING, NOVEMBER 13TH,
1885.

Sir SAMUEL DAVENPORT, Vice-President, in the chair.

The VICE-PRESIDENT announced that two days previously he had received the following telegram with reference to the New Guinea exploring party from Mr. J. J. C. Fitzgerald, the Secretary of the Sydney Society :—"Have received no further news of our exploring party, and place no credence whatever in existing rumors that party have all been killed. Will wire any further news."

Mr. G. W. GOYDER (Surveyor-General) moved that a letter of sympathy should be sent to the Sydney Society owing to the great anxiety the members were naturally experiencing as to the safety of the party.

Sir THOMAS ELDER seconded the motion, which was carried.

The VICE-PRESIDENT intimated that the term for which the members for the Provisional Council were elected had expired.

It was resolved to re-appoint Sir Thomas Elder, F.R.G.S., Hon. R. A. Tarlton, M.L.C., F. E. H. W. Krichauff, Esq., M.P., G. W. Goyder, Esq., J.P., W. B. Wilkinson, Esq., F.R.G.S., and C. H. Harris, Esq., members of the Council ; and to elect Dr. Richard Schomburgk as an additional member of the Council.

Archdeacon FARR suggested that the Council should endeavor, as far as possible, to ascertain the origin of the numberless native names of places in the colony, and preserve a history of them.

The VICE-PRESIDENT mentioned that Mr. David Lindsay had communicated to the Council his intention of undertaking an exploration trip through the unknown portion of the Northern Territory lying north-east of Charlotte Waters, and his willingness to take Lieutenant Dittrich as naturalist and botanist, if assisted by the Society with the extra outfit required. The Vice-President stated that this had been satisfactorily arranged, Sir Thomas Elder having very generously provided the camels required.

On the motion of Mr. Wm. EVERARD, a vote of thanks was passed to Sir Thomas Elder for his generous action in providing camels.

It was unanimously resolved that a vote of thanks be tendered to the Vice-President (Sir Samuel Davenport) for his interesting Address at the Inaugural Meeting.

The VICE-PRESIDENT reported that a Sub-Committee of the Council had given careful consideration to the question of the relationship of the branches of the Geographical Society of Australasia to the original New South Wales Society, and that the Committee had prepared a draft of a Federal Constitution under which it was thought the various branches of the Society could unitedly work. It was resolved, as suggested by the Council, that copies of the proposed Federal Constitution be forwarded to the New South Wales and Victorian Branches of the Society for consideration.

REPORT OF SUB-COMMITTEE.

The necessity for an amended constitution of the Geographical Society of Australasia, for the guidance of Branch or Provincial societies, and the formation of rules for a Federal or Representative Council, having been referred to the present Sub-Committee, they have drawn up the attached draft constitution and rules; but, owing to the limited time allowed, it is doubtful whether the questions have received the deliberate consideration which their importance demands.

The rapid extension of the branches of the Geographical Society to the principal colonies of Australasia was apparently not considered when the Sydney Society compiled its constitution. At present branches are formed in Sydney, Melbourne, Adelaide, and Brisbane; hence the expediency of framing new and amended rules, to govern the Society as a body, and for the guidance of its offshoots.

We are of opinion that important questions, extending beyond the authority or jurisdiction of any branch or provincial society, should be dealt with only by a conference of delegates from the respective colonies, to be elected annually, and styled the Federal Council.

Without the opinion of the other colonies on the proposed duties and powers of such a constituted Council, we can only submit our own ideas on the questions likely to arise on so important a subject; amongst others, the following are submitted:—

Should the Federal representatives of each Provincial Society be elected at a general meeting of the members of such society?

Where shall the Federal Council sit? If in each Capital, shall the President of the Society where it sits for the time, preside at all such meetings?

How many delegates should each colony send, and should the number be fixed by the number of subscribers?

How are the discussions of the Federal Council to originate?

What shall restrict its deliberations?

In matters affecting, say two colonies, is it necessary for the majority of the Council to agree, to make its decisions valid?

Are its decisions to be binding on all the branches affected?

If its orders are violated by any Branch or Provincial Society, how are they to be enforced?

How are the expenses of such Council meetings, with the expenses of the delegates, to be defrayed?

Many other important questions will no doubt occur on a careful consideration of the subject.

Some of the points raised we have proposed to meet in the attached draft.

W. B. WILKINSON,	} Sub-Committee.
A. T. MAGAREY,	
THOMAS GILL,	

Adelaide, September 10th, 1885.

APPENDIX TO REPORT OF SUB-COMMITTEE.

DRAFT FEDERAL CONSTITUTION AND RULES.

Title.

1. "The Geographical Society of Australasia."

Objects.

2. The objects of the Society are—

1. Scientific.—The advancement of geographical science, by the study of physical and political geography, the exploration of Australasia, and the islands and seas

adjacent thereto, with a view to obtain information upon their physical features, fauna, flora, geological formation, and climate.

- II. Historical.—The collection and publication of the work and life of explorers, pioneers, and others identified with the discovery, formation, or progress of Australia and the adjacent Colonies; also the collection and preservation of ethnological and historical records of colonial interest.
- III. Commercial.—The study of commercial geography, the natural and artificial products, and the resources of various countries, with a view to promote the commerce of Australasia.
- IV. Educational.—The promotion of the knowledge of physical, political, and commercial geography and history, more especially of Australasia, among all classes, by means of illustrated lectures, and publications. The compilation of a reliable geography of Australasia.

Constitution.

3. The Society shall consist of Ordinary, Corresponding, and Honorary Members.

- I. Any lady or gentleman may become an Ordinary Member, subject to election.
- II. Persons of distinguished scientific attainments, who will promote the objects of the Society, may be elected Corresponding Members.
- III. Honorary Members shall be elected from among such persons as have rendered valuable service in the cause of geographical science.

Fees.

4. Ordinary Members shall subscribe £1 1s. per annum, payable in advance, on or before the first day of the session; or a Member may at any time compound for future annual contributions, by the payment of the sum of £10 10s.

Provincial Councils.

5. Provincial Councils may be formed in the Capitals of each of the Australasian Colonies, and shall be composed of a President, Honorary Treasurer, two Honorary Secretaries, and seven Ordinary

Members of the Society, to be elected as hereinafter directed: such Council shall have the management of the affairs and property of its Society. The *ex officio* representatives of Sub-Committees under Rule 10 shall also be Members of this Council.

6. The President, Treasurer, and Secretaries of Provincial Societies shall be elected at General Meetings, and shall hold office for two years.

The Members of Provincial Councils shall be elected annually at General Meetings.

7. Each Provincial Council shall have power to fill vacancies in office, or in its own Council; but no person appointed to fill a vacancy shall hold his office by virtue of such appointment longer than the current session in which elected.

Federal Council.

8. The Federal Council of the Geographical Society shall be composed of not more than representatives of the several Provincial Societies, who shall be elected annually. The President of the Provincial Society where the Council sits for the time shall preside at all Meetings.

9. The Meetings of the Federal Council shall take place in the month of .

Each Provincial Society shall send not more than one delegate for every twenty of its Members, such delegates to be elected at the first General Meeting of each Provincial Society.

Provincial Societies.

10. Each Provincial Society shall have the entire control and management of its own affairs, and shall not be liable for any act or outlay, unless incurred with its knowledge or consent; such Provincial Societies may elect Sub-Committees for special objects. The Chairman of any Sub-Committee shall be *ex officio* a Member of the Provincial Council.

11. The powers, duties, and responsibilities of each Provincial Society shall not extend beyond the boundaries of its own Colony.

12. Questions for consideration and papers to be read at any General or Ordinary Meeting shall, in the first instance, be submitted to the Council of each Provincial Society.

13. Special undertakings or explorations authorised by the Federal Council shall be defrayed from the funds of each Provincial Society, as provided in Rule 10.

14. Each Provincial Society shall keep proper Minute and other books, and shall carefully preserve in its archives all original papers read before its Members.

15. The archives of each Provincial Society shall be kept in the Capital of its own Colony.

16. An Annual Report of each Provincial Society shall be published, and reports of all Provincial Meetings shall be transmitted to Sydney for insertion in the Annual Proceedings of the Geographical Society of Australasia.

17. The Sessions of Provincial Societies shall commence in the month of May, and last such term as shall be decided upon at a General Meeting.

18. The whole of the property and effects of each Provincial Society, of what kind soever, shall be vested in three Trustees for its use, who shall be chosen at a General Meeting.

19. No Provincial Society shall sell or otherwise dispose of any of its original papers or documents; and in the event of the dissolution of any Provincial Society, such papers and documents shall become the property of the Geographical Society of Australasia, to be deposited at the head-quarters of the Society.

20. The Meetings of the Society shall be—

Provincial.—For the conduct and business of all matters pertaining to its own Colony.

Federal.—For consideration and discussion of special subjects referred by Provincial Societies.

21. Each Provincial Society shall have power to make Rules and By-laws for the conduct of its own business, provided such Rules and By-laws shall not be repugnant to the objects of the Geographical Society of Australasia, or to any Rules incorporated herewith.

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OF THE

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SOUTH AUSTRALIAN BRANCH.

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 Sala, George Augustus, Journalist
 Warburton, Colonel Egerton, C.M.G., Explorer.

PROCEEDINGS
OF THE
ROYAL GEOGRAPHICAL SOCIETY
OF
AUSTRALASIA:
SOUTH AUSTRALIAN BRANCH.

SESSIONS 1886-7 and 1887-8.

VOL. II.

Adelaide:
H. F. LEADER, GOVERNMENT PRINTER, NORTH-TERRACE.

1890.

Price 10s.

OFFICERS AND MEMBERS OF COUNCIL
OF THE
ROYAL GEOGRAPHICAL SOCIETY OF AUSTRALASIA
(SOUTH AUSTRALIAN BRANCH),

1888-9.

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CONTENTS.

SECOND SESSION.

	PAGE.
Reports of Council Meetings, Session 1886-7	V.
Report of Annual Meeting, May 27th, 1887	IX.
I. "Physical Features of Central Australia," by Charles Winnecke, F.R.G.S., &c.	1
II. "The Pre-Historic Arts of the Aborigines of Australia," by Thomas Wornop, J.P. (11 plates and map)	9
-III. "The Customs, Religious Ceremonies, etc., of the 'Aldolinga' Tribe of Aborigines in Krichauff Ranges, Central Australia," by F. E. H. W. Krichauff, M.P... .. .	33
IV. "Lake Amadeus and its Vicinity," by W. H. Tietkens, F.R.G.S.	38
V. "The Physical Geography of the South-West of Western Australia," by His Excellency Sir Wm. C. F. Robinson, G.C.M.G. (with map)	43
VI. "The Rivers of the Northern Territory of South Australia," by Captain Carrington, late Commander s.s. <i>Palmerston</i> (with map)	56
-VII. "Further Notes on the Customs, etc., of the 'Aldolinga' Tribe of Aborigines," by F. E. H. W. Krichauff, M.P... .. .	77

THIRD SESSION.

Reports of Council Meetings, Session 1887-8	III.
Report of Annual Meeting, July 6th, 1888	IX.
Report of Second Interprovincial Conference, held in Adelaide, September 7th, 1887	XV.
I. "Explorations in the Northern Territory of South Australia," by David Lindsay, F.R.G.S.	1
- II. "The Adjahdurah Tribe of Aborigines on Yorke's Peninsula," by T. M. Sutton	17
- III. "The Parkengees or Aboriginal Tribes on the Darling River," by S. Newland, J.P.	20
IV. "The Nullabor Plains and West Boundary of the Province," by W. H. Tietkens, F.R.G.S. (with map)	34

PROCEEDINGS
OF THE
Royal Geographical Society of Australasia.
(SOUTH AUSTRALIAN BRANCH.)

SECOND SESSION, 1886-7.

COUNCIL MEETINGS.

June 7th, 1886.

Present—Seven.

The Chairman reported that His Excellency the Governor, Sir W. C. F. Robinson, G.C.M.G., had kindly offered to read a paper on South-Western Australia in September next.

Captain Carrington, late commander of s.s. *Palmerston*, recently engaged in surveying the rivers of the Northern Territory, and now residing in Adelaide, to be asked to read a paper on his explorations in the Northern Territory.

July 9th, 1886.

Present—Seven.

A telegram from the Victorian branch was read, asking the co-operation of this branch in soliciting Lord Carrington to ask that Her Majesty the Queen will be pleased to grant her gracious patronage to, and permit the assumption of the title "Royal" by, the Geographical Society of Australasia. The Council acceded to the request, and the secretaries were authorised to communicate with Lord Carrington through the President of the New South Wales branch.

The secretary of the Victorian branch wrote calling attention to the advisableness of collecting information respecting the Antarctic explorations, and Sir Thomas Elder promised to communicate with the President of the American Geographical Society, in New York, inquiring whether any log-books or manuscript records were known to exist in the American ports of the many ships formerly dispatched from New York and other American ports on whaling and sealing expeditions, and which rendezvoused on the south coasts of Australia and New Zealand.

Mr. J. W. Jones (hon. secretary) reported that human remains, supposed to be those of Charles Gray (of the ill-fated Burke and Wills' expedition), were now lying at Coongie station, near Cooper's Creek, and suggested that steps should be taken to bring the remains to Adelaide for examination. It was decided to ask the Surveyor-General to instruct the first survey party that happened to be in the vicinity to carefully collect the remains, and hand them over to this branch, in Adelaide.

A donation of old colonial maps and plans was made by Mr. A. S. Clark.

August 13th, 1886.

Present—Five.

Mr. W. H. Tietkens wrote offering to read a short paper on "Lake Amadeus and its Vicinity," on the 30th instant.

September 15th, 1886.

Present—Seven.

Promises of papers were received from Mr. J. Ednie Brown, F.L.S., on Australian Forest Trees, and from Mr. A. F. Lindsay, on the Encounter Bay Tribe of Natives.

Captain Carrington reported that he had almost completed his paper on the Rivers of the Northern Territory, and the reading of it was fixed for November 1st.

October 19th, 1886.

Present—Five.

The Chairman reported that the Government had promised the sum of £100 towards the funds of the society for the current year.

November 30th, 1886.

Present—Five.

Only routine business came before the meeting.

December 10th, 1886.

Present—Seven.

The Victorian branch forwarded three photos in connection with the New Guinea Exploring Expedition.

The New South Wales branch wrote, informing this branch that Her Majesty the Queen had permitted the Geographical Society of Australasia to assume the title of "Royal."

Lieutenant Diettrich, who accompanied Mr. David Lindsay as collector, attended at the society's rooms, and gave an outline sketch of the route travelled over by the party from Hergott Springs to Port Darwin.

Sir Samuel Davenport, K.C.M.G., President of this branch, being on his way back to the colony, it was decided to accord him a welcome on his return to Adelaide.

March 1st, 1887.

Present—Five.

Donations of publications from the Scottish, American, and Paris Geographical Societies were received.

A medal and diploma, received from the Colonial and Indian Exhibition, in London, were laid on the table.

Mr. Gill submitted a form of chronological chart of Australian explorations, which was adopted, and authorised to be completed.

Mr. David Lindsay offered on loan a collection of native weapons and implements collected by him on his recent exploratory trip.

May 13th, 1887.

Present—Five.

The annual meeting of this branch was fixed for the 27th May.

The Hon. Samuel Tomkinson, M.L.C., and Mr. Clement Sabine, were appointed auditors.

The Hon. J. L. Parsons, Government Resident of the Northern Territory, now in Adelaide, to be asked to read a paper on the Northern Territory.

ATTENDANCE ROLL.

SESSION 1886-7.

COUNCIL MEETINGS HELD, 9.

Sir Samuel Davenport, K.C.M.G.	..	..	..	..	Absent in London	
Sir Thomas Elder, G.C.M.G.	..	..	..	..	..	9
Hon. R. A. Tarlton, M.L.C.	..	..	..	..	..	3
F. E. H. W. Krichauff, M.P.	..	..	..	..	..	4
W. B. Wilkinson, J.P...	..	..	..	..	..	6
G. W. Goyder, J.P...	..	..	..	..	..	6
C. Hope Harris	..	..	..	..	..	1
Dr. B. Schomburgk..	..	..	..	..	Absent through illness	
J. W. Jones, J.P.	..	..	..	..	..	6
A. T. Magarey	..	..	..	..	..	9
Thomas Gill	..	..	..	..	..	9

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

ANNUAL MEETING.

The annual meeting of the Royal Geographical Society, South Australian Branch, was held at the Arbitration-room, Marlborough Chambers, Waymouth-street, on Friday afternoon, May 27th, 1887. There was a good attendance, and the president (Sir Samuel Davenport, K.C.M.G.) took the chair. Lord Brassey was present by invitation, and occupied a seat on the right of the Chairman. Among the other gentlemen who attended were the Acting-Premier (Hon. J. C. Bray), Sir T. Elder, Sir Wm. Milne, the Postmaster-General (Mr. Chas. Todd, C.M.G.), and Dato J. Meldrum. On the walls of the room were displayed the collection of native weapons brought from Central Australia by Mr. David Lindsay. Apologies were received from his Honor Chief Justice Way, and Messrs. G. W. Goyder (Surveyor-General), and J. W. Jones (Conservator of Water).

SIR SAMUEL DAVENPORT, K.C.M.G., after welcoming Lord Brassey, said he was sure those present would agree with him that that was more than a red-letter day in the history of the Society. Over 300 years had elapsed since the first discovery of the shores of Australia—not by Englishmen, but by Spaniards or Portuguese—and now they had amongst them one of their own countrymen whose history they all knew. They had all heard of his interesting voyages, extending from sea to sea, in which he had been accompanied by his lady, as brave as himself, and they found now that he was bringing up his children like the good Norse Kings. It was a pleasure to see there that day an Englishman who bore the bold and brave character which distinguished Englishmen centuries

ago. (Hear, hear.) Lord Brassey would see in visiting South Australia, and in travelling through the continent, that we were all of the same race. That we had not been idle people in this colony he thought his lordship's observations would prove. The trade of the Dutch and Portuguese with Java had led to the discovery by them of the upper portion of Australia, which was called Great Java, and which was shown in a work published in 1604, or thereabouts. Our possession of this colony afforded evidence that as a race we possessed the same perseverance in bringing to a successful issue any difficulty, that characterised our forefathers, and that we were not afraid to meet the difficulties which are encountered in the development of a country, like some other races were. For some reason the Dutch did not settle here. They, unlike ourselves, were not able to look forward to a dense population settled in these lands, and to the development of their natural wealth. The settlement was carried out by Englishmen, owing to the discovery of the eastern shores by Captain Cook 120 years ago, and Lord Brassey would, during his tour of the colonies, which he hoped would be an exceedingly pleasant one, be able to see the great progress which had been made, and to form an idea of the future greatness of Australasia. (Applause.)

The HON. SECRETARY (Mr. A. T. Magarey) read the annual report of the Council, as follows:—"In opening the third session the Council has the satisfaction of being enabled to lay before the Society a favorable statement of its affairs. Our list of members at the beginning of last year numbered seventy-nine, and since our last anniversary seven new members have been elected; five vacancies have occurred, two by death and three by resignation; so that we begin the present year with a roll of eighty-one. In addition to these, we have three honorary members and one corresponding member. Financial.—The receipts for last year were—Subscriptions, £56 14s.; grant-in-aid from the Government, £100. The expenditure has been—Rent of office, rates, and hire of rooms, £87 18s. 10d.; furniture and fittings in office, £24 15s. 10d.; office expenses and sundries, £32 15s. 5d.; equipping a naturalist to accompany Mr. David Lindsay, £12 18s. 4d.; leaving a balance in bank of £16 18s. The arrear subscriptions amount to £55 13s.; this, with the balance above, makes a total asset of £72 11s., against which our present liabilities amount to £41 19s. 11d., leaving a balance of £30 11s. 1d. Council Meetings.—During the second session, ended 20th May instant,

ten meetings of the Council were held for attending to the ordinary business of the Society. Last year the Society was deprived of the highly-esteemed services of the President (Sir Samuel Davenport, K.C.M.G.), who was absent in London as Commissioner for South Australia at the Colonial and Indian Exhibition. Your Society was identified in the general welcome to Sir Samuel in the Town Hall upon his return. General Meetings.—Six ordinary general meetings were also held, at which the attendance, excepting on two occasions, was not very encouraging. It would gratify the Council if members generally would exhibit a little more interest in the papers read before the Society, and avail themselves of the privilege of introducing a few friends occasionally to the meetings, either personally or by tickets to be obtained from the Secretaries. At the General Meetings the following papers were read:— ‘On the Physical Features of the south-western portion of Western Australia,’ by His Excellency Sir W. C. F. Robinson, K.C.M.G.; ‘On the Physical Features of Central Australia,’ by Messrs. Winnecke and Knuckey; ‘The Customs, &c., of the Native Tribe Aldolonga, Central Australia,’ by F. H. E. W. Krichauff, Esq., M.P.; ‘The Prehistoric Arts of the Aborigines of Australia,’ by Thomas Worsnop, Esq., J.P.; ‘Lake Amadeus and the Vicinity,’ by W. H. Tietkens, Esq., F.R.G.S.; ‘The Rivers of the Northern Territory,’ by Captain Carrington. All of these papers are in type, but owing to the heavy pressure of work in the Government Printing Office we were unable to obtain copies for immediate distribution amongst members of the Society. The delay is also, in a great measure, attributable to the extra labor involved in the preparation of special maps to accompany the papers, but arrangements have been made for the prompt issue of papers in future. Rooms.—The necessity of obtaining rooms in a more central position in the city than those occupied at the previous annual meeting, engaged the serious consideration of the Council. In securing the present rooms, the Council hope that its convenient situation will be availed of by members. Several maps are now hung on the walls, and maps of the adjacent colonies will shortly be completed and exhibited. Shelves have also been fitted up for a library. Library.—But little progress is made towards obtaining a suitable collection of books and maps, and the Council will feel indebted to any members who can assist by donations of books or maps. Royal Patronage.—Jointly with the branches in the Eastern Colonies your Council approached Her Majesty Queen Victoria through His Excellency

the Governor of New South Wales, requesting that Her Majesty would be pleased to grant her gracious patronage to and permit the assumption of the title of the Royal Geographical Society of Australasia. The Council has received Her Majesty's gracious assent, and the title 'Royal' is now adopted by this and other branches. Central Australia.—In November last, Mr. David Lindsay, who had fitted out a party to conduct a private survey near the Queensland boundary, kindly offered to allow a naturalist to accompany his party. Baron Sir F. von Mueller recommended Lieutenant Dittrich, who proffered his services; and Sir Thomas Elder having generously offered two camels, the Government and the Society contributed towards the outfit. Lieutenant Dittrich was also provided with a photographic apparatus, but, unfortunately, the most valuable views of the interior of Central Australia and its natives have been lost. A collection of plants obtained on this trip have been forwarded to Baron Sir F. von Mueller for examination. The Council have arranged with Mr. Lindsay to read a paper early this session, giving an account of his recent journey through the interior. A collection of weapons, obtained by Mr. Lindsay on this trip, and kindly lent to the Society, are now on view in the Society's rooms. Antarctic Expedition.—The Council received several communications from the Victorian branch with reference to co-operation in Antarctic exploration, but in the present depressed state of affairs could not see its way to render any monetary assistance to the project, though greatly interested in the questions to be solved. Arrears.—The Council regret to find that the arrears of subscriptions are so large, but, bearing in mind the severe depression existing throughout the colony, are hopeful that, with the present prospects of a good season and a consequent revival in trade, the arrear list will be considerably reduced during the current session."

The HON. J. C. BRAY, in moving the adoption of the report, remarked that it indicated pretty fully what had been done by the Society during the past year. Seeing that the Society was only projected some two years ago, the statements made were satisfactory. The mention in the report that the Society could now use the title "Royal," would, no doubt, lend additional interest to the proceedings, and the institution would be found to prove of great benefit to all concerned.

SIR T. ELDER seconded the motion.

The PRESIDENT expressed his thanks to Sir T. Elder for the

kind way in which he had occupied the chair during his absence in England, and said he was also grateful for the kindly references made to himself in the report.

The motion was carried.

The Hon. R. A. TARBTON, M.L.C., moved that the Hon. D. Murray, M.L.C. (Chief Secretary), and Mr. J. Langdon Bonython should be elected members of the Council in the places of Dr. Schomburgk and Mr. C. Hope Harris, who had retired. He joined with Sir Samuel Davenport in cordially welcoming Lord Brassey, because he worthily represented the old sea kings who came from the north. We in these southern colonies were indebted to such men for the discovery of this portion of the world. They, by their large views and broad spirit of commerce, threw this country open to us, and he hoped the time would come when we, in the same spirit, would welcome the Chinese when they took up their residence amongst us, for the earth was the Lord's, and the fulness thereof.

Sir WM. MILNE seconded the motion.

The HONORARY SECRETARY stated that the election was for a term of three years.

The motion was carried unanimously.

The Hon. S. TOMKINSON, M.L.C., moved that Dato J. Meldrum, F.R.G.S., the Commissioner to the Exhibition for Johore, should be elected a corresponding member of the society.

Mr. J. ROBIN seconded the motion, which was carried.

Mr. TODD, C.M.G., moved that the Hon. S. Tomkinson and Mr. Clement Sabine should be elected auditors. He felt great pleasure in the progress that the society had made. The initiatory meeting, although the proposal to establish the society fell through at the time, was held in his office. He was President of the Royal Society at the time, and he was asked to take the matter up. But at that time they were unable to start the society. He was glad to see that the institution had been started, and was pleased to be a witness of its prosperity.

The Hon. R. A. TARBTON seconded the motion, which was carried.

Mr. J. LANGDON BONYTHON moved that Dr. Schomburgk should be elected an honorary member of the society.

The Hon. R. A. TARBTON seconded the motion, which was carried.

LORD BRASSEY, who on rising was received with cheers, said—There is no more business on the paper, but still there is a resolution which I desire to move before the proceedings are brought to a close, and if I may be permitted, as a stranger, to move a vote of thanks to the Chairman for his able conduct in the chair, perhaps I may be allowed before doing so to say a word or two. (Hear, hear.) You have spoken about the voyages which have been conducted upon the deck of the *Sunbeam*, and our adventures and efforts and enterprise as not unworthy of our northern forefathers, the glory of whose deeds are equally shared in by their descendants in England and Australia. Well, gentlemen, I can't take to myself the character of being an adventurer in the same sense as those northern forefathers were adventurers. I won't speak of the morality of their proceedings—(laughter)—but of the feats of navigation in which they engaged. These northern forefathers of ours were not provided with all the information which science has given to facilitate modern navigation. They were in a different case. If we look down to later times, to the great navigations of Captain Cook, and if going about the seas with all the facilities for discovery provided by recent scientific and geographical discoveries and modes of navigation—with all this at our disposal—we yet find voyaging not very easy. I must say that as I look back to the time of Captain Cook, who ventured to these seas without information, and only his knowledge of seamanship and nautical instincts to assist him, my appreciation of his deeds never weakens, but rather grows stronger. I am particularly pleased that so excellent and useful a society as this has been established in Australia. I understand that it is a sort of collateral society, branches of which exist in other colonies in Australia. (Hear, hear.) It seems to me to be doing a great work. Exploration is a necessary step to the settlement and development of a country. It is a work the importance of which presses on the minds of those interested in the development of new countries. A previous speaker had expressed his deep satisfaction that the control of this fifth continent has devolved upon the Anglo-Saxon race, who, with a spirit of enterprise and with large views of policy, have done so much to promote trade and commerce. I fully share in that. In coming to these shores I touched at two ports, which, by the contrast they presented, made me appreciate the value of a large and liberal policy for the development of commerce. These ports were Singapore and Macassar. Singapore dates its existence back

to some fifty or sixty years at the most, and it has grown to be a magnificent emporium of trade. How has it reached that position? By declaring the very first day when the protective flag of England was hoisted, that a welcome should be extended to ships of commerce to whatever nationality they might belong. And what had the Dutch done at Macassar, which I may fairly compare, as regards position, to Singapore? Macassar is the oldest European settlement in the Eastern Archipelago, but it presents to-day all the appearances of stagnation in trade and decay. And why? Because everything is being done to exclude all enterprise except the Dutch. Men would have come from all countries north and south to assist them in the development of trade, but access was denied to them in a narrow selfish spirit, and the result is that Macassar shows signs of depression and decay, while Singapore is triumphant and growing. Before I sit down may I be allowed to refer to some portion of the report in which reference was made to the recent phase of exploration in which this Society was interested. You alluded to the exploration of New Guinea. There are some delicate questions connected with New Guinea (hear, hear), upon which I shall certainly not touch; but I may say this, that all I have seen of the world has tended to impress upon my mind most deeply the conviction that latitude does in a very decisive manner govern the efforts of the Anglo-Saxon race so far as regards direct physical labor. I feel convinced that, unless you have the inestimable advantage of having after a long hot summer the bracing season you are now enjoying in Australia, you cannot but come to a conviction that the country is unsuitable for out-of-door work for Anglo-Saxon laborers. You may direct and administer in office, but to go out in the field to dig and delve, I think the Saxon race wants a period of bracing weather to compensate for the hot seasons you have in Australia. If that truth be accepted, it will be seen that, when we contemplate acquisition of territory in extremely hot climates, we must not expect that it is going to be a field suitable for the employment of Anglo-Saxon labor. It does not follow, however, that these colonies are not to be of great benefit, and will not even directly bring to our own race employment of labor, because if we can succeed in developing these tropical regions, even if the labor employed be Oriental, we may be doing a great good to our Saxon laborers, who are working in climates suitable to their constitutions. It is obvious that the races of tropical countries, when they grow prosperous under our

flag, become consumers of goods which are made and produced by the Anglo-Saxon race dwelling in suitable regions. The opening up of these tropical regions is good for the employment of Saxon labor; but it must be seen that it is not by working in the country, but by producing goods which the people of tropical regions under our rule require, and cannot themselves produce. These subjects are extremely interesting, and a visit to Australia cannot fail to be of deep interest to every patriotic Englishman. In the old country we are, day by day, becoming more deeply sensible that it is the highest duty of statesmen to keep together every limb of the great empire. Affection for the colonies, and pride in their achievements, is daily growing. Our hope is, that the sentiment of affection may be so warm, and that we may be so helpful to one another, that no considerations, whether of sentiment or self-interest, will ever lead any member of the Anglo-Saxon family to desire separation. If in coming here I gain knowledge, and, on going back, I can do anything for Australia, I shall feel that my journey has not been in vain. (Cheers.) I have said more than I intended to, but the Chairman has given me encouragement to proceed. I now beg to move "A vote of thanks to the Chairman." On resuming his seat, Lord Brassey was warmly applauded.

Dato J. MELDRUM, from Johore, seconded the motion. He said he could endorse every word that Lord Brassey had uttered. His connection with the East dated from 1848, and he had had a little experience with Asiatics, so that he could endorse all that his lordship had said with regard to Asiatics within the tropics.

The motion was carried.

The PRESIDENT thanked Lord Brassey and Mr. Meldrum for moving and seconding the motion. To Lord Brassey he owed a debt in that he had given him great enjoyment when he spent a day with his lordship at his residence, Normanhurst, Hastings. Though his lordship disclaimed any comparison between his sailing feats in the *Sunbeam* and those of the old Norse kings, yet he must say that it required both pluck and skill in navigation to travel around the world as he was doing, accompanied by her ladyship, who exhibited just as much courage. Not only did his lordship yatch for pleasure, but he had learned that on board he instructed his own men in the art of navigation, and thus he coupled their pleasure with their advancement in life. That recorded a character of which they would all feel the highest admiration. (Cheers.)

P A P E R S

READ BEFORE THE

Royal Geographical Society of Australasia.

2nd SESSION, 1886-7.

SOUTH AUSTRALIAN BRANCH.

The Council desire it to be understood that in giving publicity to the papers read before the Society they accept no responsibility for opinions or statements expressed therein.

Physical Features of Central Australia.

(BY CHAS. WINNECKE, F.R.G.S., &c.)

(Read June 28th, 1886.)

At the request of several gentlemen connected with our Society, I have much pleasure in furnishing you with a short address in reference to my travels and explorations in Central Australia. Doubtless, the general results of my travels are somewhat known to you. I will therefore confine myself to giving you a brief description of such natural features and events as I deem interesting. I may preface my further remarks by stating that my explorations in Central Australia and bush experience elsewhere in Northern Australia extend over a period of twelve to thirteen years, and embrace a knowledge of the country north through Central Australia to latitude $80^{\circ} 30'$ south, and between longitudes 131° and 141° east. Throughout this extensive region, occupying, as it does, the greater part of Central Australia, many millions of acres of good and fertile country have been discovered. This country, combined with large extents of good country discovered by former explorers, I am sorry to state, is still unoccupied by those pioneers of civilisation, the so-called squatters. This country is also in various places improved and enhanced in value by high mountains and ranges (to which I shall refer later on), and by many of those peculiar dry sandy rivers. These latter are natural features peculiar to the interior of Australia, and differ greatly from other rivers found near the sea-coast.

A short description of the Finke, which may be considered the principal river in Central Australia, may be of some interest to those members of our Society who are not personally acquainted with the interior of our continent. The Finke River or Larra-Pinta of the aboriginals, including its various tributaries, notably the Goyder and Hugh, must be nearly 1,000 miles in length. It has a very wide channel, which is almost entirely filled with fine white sand, resembling that found on the sea beach. Water is nearly always procurable by digging in this sand. In its upper portions, especially amongst the MacDonnell Ranges, the banks of this river are steep and rocky, and in several places, and especially in the numerous gaps and gorges through which it has forced its way, fine long reaches of water are to be seen, in which several varieties of fish abound. In its lower portions the banks of this peculiar river are scarcely perceptible, and are quite inadequate to confine the immense body of water which sometimes (once, perhaps, in many years) rushes with tremendous force down its channel. These waters constitute the drainage of the MacDonnell, Gill's, Krichauff, and other ranges in Central Australia, from which this river derives its source. The lower Finke, when an overflow

occurs, floods hundreds of square miles of country, forming apparently numerous vast lagoons or lakes of fresh water—a most cheering view in these otherwise arid regions. Eventually a portion of this vast quantity of water finds its way over low swampy flats into the Macumba River, and thence into Lake Eyre, but by far the greater portion is absorbed in the soil or sand, and no doubt materially adds to the supply of subterraneous waters now practically ascertained to exist in the Lake Eyre basin. I may also mention that the lower Finke must be very near sea level. I ascertained in 1877, by means of barometrical and hypsometrical observations, various altitudes in this locality, and discovered the fact that Lake Eyre was below sea level. This assertion was then but little credited. It has, however, now been definitely proved.

There are several other large rivers, such as the Todd, Hall, Marshall, Hay, &c., which also derive their existence from the northern, eastern, and southern slopes of the MacDonnell Ranges, and whose waters trend southward towards the Lake Eyre basin. Some of these rivers have as yet only been partially explored. They are known to traverse a portion of the great interior desert, but their limits are as yet unknown. It is however, in my opinion, beyond doubt that they also tend to increase by absorption the supply of underground water in the Lake Eyre basin. All these rivers have beautiful large gumtrees growing along their banks, whose timber is well adapted for a variety of purposes, and will eventually become valuable in a country where the prevailing vegetation is so stunted.

We have thus several large rivers which take their rise in Central Australia amongst high ranges of from 5,000 to 6,000 feet in elevation, and which, in their southward course, drain an area of many thousand square miles, and gradually disappear in the vicinity of those mound springs in the Lake Eyre basin. A glance at the map of Australia will show that this basin receives the surface drainage of about half a million of square miles of country. The mound springs, in my opinion, are of very great importance, and my short description will, perhaps, give you but an inadequate idea of their value. I have found these springs in various localities, several hundreds of miles apart, with no material difference in their outward appearance, and I have come to the conclusion that they all emanate from one source, and all derive their existence from the immense quantity of water which must necessarily exist underground in these regions. They may be, therefore, called natural artesian wells. A large cluster, consisting of some thousand large and small springs, is situated in about longitude 139° and latitude 23° south, but the most remarkable are the Dalhousie and other springs near the overland telegraph line, and near the northern boundary of South Australia, which many travellers have seen, yet very few have examined or noted the few facts which I am now about to state.

Amongst the mass of springs called the Dalhousie, which stretch over a considerable extent of country and are surrounded by a low stony tableland, almost every variety of water is obtainable. Many of these springs are deliciously cool and fresh even in the hottest part of summer, others again are warm, some are brackish, and again some are so hot as to be undrinkable. Very many emit disagreeable gases, and some have a constant temperature of from 90 to 130 degrees Fahrenheit. Some of these springs only eject liquid mud, and a few are charged with sulphur and sulphurous gases; this can be readily detected by the appearance of the surrounding soil, which becomes sufficiently impregnated on the surface to admit of its burning when subjected to the test of fire. The majority of the springs contain soda, salts of ammonia, iron, magnesia, and other ingredients in more or less abundance. Nearly all the waters have, however, been frequently used, and it is therefore reasonable to suppose that there is nothing deleterious contained in them. Reeds grow luxuriantly and in great abundance around the Dalhousie Springs. I have tested the temperature of the water at the Lodon Spa Spring at various times and seasons, and always found it to be 92 degrees; nearly all springs afford an unfailing supply of water. It, however, sometimes occurs that a spring gradually becomes silted up by refuse matter which it no longer is able to eject; invariably on such an occurrence a fresh spring bursts through the soil at some other place with a loud noise resembling thunder, or the distant report of a large gun; this is especially noticeable, and said to occur more frequently on still nights.

It has also been ascertained that most of these springs are slightly intermittent; their maximum and minimum periods however have not yet been noted. It further appears that during seasons of excessive drought, such as have occurred during late years, the supply of water from most of these springs increases in a very extraordinary manner, nearly doubling its original quantity; and again, during winter or the rainy season, contrary to the popular idea, the streams of water flowing from these springs become visibly less. I shall not presume to advance any theory on these facts, which I deem highly interesting, but would gladly hear the opinion of some scientific gentleman on this subject. It is, however, quite evident to even a casual observer that at some former remote period many of the largest of the springs must have presented a similar appearance to those geysers existing at the present time in other parts of the world, and ejected their water with great force to a considerable height above their present level; thus the round or conical mounds on the summit of which most of the oldest and largest of these springs are found would be formed by a gradual accumulation of the secretions contained in the water, and to which evaporation would give a constant increase. The country in the immediate vicinity of

most of these springs is generally devoid of vegetation. The salt, soda, and other matters with which this soil is sometimes heavily charged (caused apparently by the evaporation of the overflowing waters) prevent the growth of any but the coarsest vegetation, and is capable of petrifying and crystallizing any foreign substance within their reach, such as decayed roots, timber, &c. An analysis of the water from the different springs in this region, would, I should imagine, be very instructive.

In some few localities small native wells are found. These are merely small holes, from a few feet to perhaps 20ft. in depth, scraped out in a crude manner by the natives, with the aid of sticks and pieces of bark or other wooden utensils, and contain at the most but a small quantity of the precious fluid; sufficient perhaps for the requirements of three or four natives for as many months during the year. The wells are supplied and caused by the drainage of some large sandhill in the vicinity of a patch of clayey country, and water can only be obtained from them for a certain time after heavy rains. During seasons of drought these wells of course remain dry, and gradually get filled up with sand and vegetable matter, which is expedited by the action of the wind until they finally disappear, to be again re-dug by the natives at some future period, after sufficient rain has fallen to renew the drainage from the sandhills. I have discovered many hundreds of these wells in my travels, and have arrived at the conclusion that some are of great age, or, more correctly speaking, have been re-dug for a great number of years by different generations of aborigines. Judging by the different deposits of vegetable and animal matters, such as decomposed lizards, snakes, dogs, and bones of other animals found embedded in the soil and subsoil of and near these wells it would appear that they are periodically filled up with these and other substances; the animals probably falling into these wells or perishing at them through thirst, no doubt after the natives have completely exhausted their limited drainage. In many places the natives seemingly take the utmost care to preserve these insignificant wells from evaporation by carefully covering them over with rubbish. When requiring a drink, and they only use the water for drinking purposes (the only use they make of the water, I may remark); they expose but a small surface, just sufficient to enable them to effect their purposes. In some instances, where the wells are very shallow, this is also done to entrap game. The native lies hidden by a bunch or two of leaves, close by, patiently waiting, with his spears and other weapons in readiness for the approach of any stray or unwary emu or turkey which may be driven there by excessive thirst.

A careful examination of these wells upon which the natives of these regions are frequently compelled to exist for lengthened periods might convey some idea of the desperate position and straits to which these unfortunate inhabitants of the desert are

often compelled to submit. It is therefore not so very surprising that this branch of the human race should show such a marked inferiority, physically and otherwise, when compared with those black races which inhabit more favored regions such as Queensland and the Northern Territory, where ample supplies of food and water are procurable almost at any time and place without much trouble. This great difference in the natural conformation of the country may also account for the difference in character between the various tribes of aborigines in Central Australia. Those who inhabit the dense scrubs and live on the confines of the desert are forced by circumstances to lead a nomadic life. Nature has been very sparing in her gifts to this portion of Australia. Its inhabitants are consequently not very numerous, and also appear to be somewhat dwarfed, their full development probably being affected and retarded by the scarcity and quality of their food, &c. They themselves apparently recognise the fact that their country is unable to support a large population. Hence their peculiar laws and usages, many of which are only partially known to us, and some few of which resemble the ancient Mosaic laws. Marriages amongst these children of the desert appear to be few in number. In various tribes certain members are doomed to a life of celibacy, whilst others are only allowed to rear a certain number of children. Some of their customs are unusually savage, yet on the whole these unfortunates are possessed of a high standard of morality amongst themselves. Those tribes which inhabit the well-watered and fertile districts of the Northern Territory and other parts of Central Australia which I have visited are not tampered with the restrictions I have just mentioned, and which must appear to us unnatural. These natives are consequently far more numerous, and congregate in far larger numbers. I have seen as many as 1,000 collected around certain large waterholes on the Buchanan River, but this large assemblage was probably due to my presence. The occupation of these natives does not, like those of the desert, consist in a constant search after food. They appear to belong to a distinct race, having strong and well-developed figures, an open and somewhat pleasing countenance, and a fearless disposition. Their language and their habits, such as the burial of their dead, &c., are also entirely different.

The vegetation of the desert, to which, at the earnest request of the Baron Ferdinand von Mueller, I have paid special attention on my different journeys, would be an interesting study to any botanist. As previously mentioned, on a hurried journey such as must necessarily be made through this country many interesting specimens are overlooked. I have, however, succeeded recently in securing several entirely new plants, and feel certain that many more exist in these parts. The prevailing vegetation is very stunted, and consists of several varieties of acacia, known by the local names of mulga, wattle, gidea, myall, &c., and desert eucalypti, of which

there appears to be several species, also spinifex; the latter, in fact, predominates almost everywhere, growing alike, and in equal abundance on the red sand ridges as well as on the most barren and rocky ranges. It is similar in appearance to the porcupine grass of South Australia. In one, and only one spot, the famous Pituri plant is found. This locality is situated in latitude 24° on the eastern extremity of the previously mentioned desert. I have only seen this plant in this one particular stretch of country, extending about thirty miles in length. It appears to grow only on the extreme tops of the sand ridges, and hitherto all attempts at transplanting have resulted in failures. I am not aware that this plant exists in any other part of Australia. Its properties, however, are well known to all the natives of Central Australia, and to some tribes many hundreds of miles from where this peculiar plant appears to be indigenous, and is eagerly sought for by these people, who subject it to a peculiar treatment—first by steaming, then masticating it, and finally mixing it with certain ashes, produce a compound which apparently affects them in a similar manner to what opium would do—completely stupefying, and rendering them sometimes for days insensible to pain. I have secured a small quantity of the sun-dried leaves and stems of this plant, and shall be glad to hand the same over to any gentleman who may wish to test its properties scientifically. The limits of the desert are, as a rule, sharply defined. The explorer may travel in these latitudes for hundreds of miles through a weary and monotonous scrub and sand, when suddenly, as if by magic, the scrub terminates, and he enters on an apparently boundless plain. The change in the soil is equally marked. The desert portions consist of red clay and sand, and the plains are composed of a rich alluvial soil of black and brown loam mixed with clay. The vegetation also undergoes a complete change, the plains being thickly covered with the finest and most nutritious grasses, which are capable of supporting any number of stock. I have no hesitation in declaring this latter country equal to the finest pastoral country of Australia.

Perhaps one of the most remarkable features in Central Australia is the MacDonnell Ranges, which were discovered by John McDouall Stuart in his overland journey to the North Coast many years ago. These very remarkable ranges, the limits of which have been ascertained and mapped by later explorers, extend from the 130th to the 136th meridian of longitude, a distance of about 400 miles, with a variable width of from 20 to 50 miles, and attain an elevation of over 5,000 feet above sea level. By referring to a series of approximate barometric heights observed by me several years ago, extending from sea level at Port Augusta along the greater portion of the overland telegraph line to Tennant's Creek and north-east thereof, I am enabled to state that the country from Port Augusta northward continually ascends for nearly a thousand miles (this distance is reckoned by the existing

track, not diagonally), until the MacDonnell Ranges are reached. From here, still continuing in a northerly direction along the existing track and telegraph line, the country rapidly descends towards the north coast, thus proving the existence of an elevated ridge, namely, the MacDonnell Ranges, which are situated almost exactly midway between the north and south sea coasts, and which are more elevated than any other portion of Australia, with the exception of the ranges on the eastern coast. It is obvious that the MacDonnell and other connecting ranges in this locality have redeemed the centre of Australia from being a thorough wilderness. Without them no large rivers or creeks could possibly have been formed in such a porous and sandy country, nor would the supply of artesian water have been so abundant in the Lake Eyre basin.

The central portions of this range consist of three immense precipitous tiers or ridges, running almost parallel east and west, with numerous foot ranges, which in themselves are of considerable elevation; the interior portions in many places are as yet unexplored. Numerous gaps and gorges, in many of which permanent supplies of water exist, have been discovered. The ranges are interspersed by numerous deep and rocky creeks, which collect the water from innumerable gullies and ravines, and trend their tortuous way sometimes under perpendicular cliffs of enormous elevation, until they find an outlet through the main outside range by one of those previously mentioned gorges. In many places isolated mountains appear rising abruptly and grandly above the surrounding lower hills, their sides plainly indicating the action of water. The formation of the MacDonnell Ranges is principally red granite, though nearly all other rocks are to be found in more or less abundance. Many of the lower hills are composed of manganese, iron, slate, basalt, gneiss, sandstone, and quartz; copper, and indications of gold, tin, and other metals have also been discovered in several places. Hitherto I have endeavored to describe those natural features which must be considered of the greatest importance to the interior of Australia, and as my space must necessarily be limited, I will only add a few general remarks in reference to exploration.

Although much good country exists in Central Australia, there is an equal, if not larger, portion which can only be described as a hideous desert, consisting either of dense scrub and sand, or huge rolling sand ridges, without water or a single sign of animal life—a region in which silence and solitude reign supreme. It is in this latter country where the explorer suffers the greatest hardships. These desert portions have repeatedly baffled the attempts of many explorers to penetrate, but since the introduction of camels by Sir Thomas Elder (to whom all praise is due for this undertaking, and for his well-known generosity in the equipment of numerous exploration parties), even this country has been traversed,

and although vast distances have been travelled over without finding water or even grass, the danger of perishing from thirst, which formerly threatened the explorer, has almost ceased to exist. It is, therefore, beyond doubt that camels will be found in time to be indispensable to travellers and settlers in the interior. As an instance of their wonderful powers of endurance, I may mention that on my last journey I penetrated the sandhill desert lying to the south-east of the MacDonnell Ranges and near the Queensland border, which many years ago baffled the attempts of various explorers who were only provided with horses. On this journey a distance of 278 miles without water was traversed over the highest and most trying sandhill country in Australia. This performance was accomplished in hot weather, and the camels were sixteen days without a drink of water. They were also heavily laden, carrying at the start about 700lbs. each. The sandhills, which frequently had to be crossed at right angles, proved very distressing to these noble animals, who were often compelled to go down on their knees in order to be able to mount to the top of the ridges with their immense loads. I was fully prepared in this instance for at least a 300 miles dry stage, but fortunately discovered water at 278 miles. This immense distance, although performed under disadvantageous circumstances, did not appear to distress our noble animals very much, and after one day's rest a fresh journey of over 150 miles was performed in similar country with similar results.

It is generally supposed that the unfortunate explorer, Dr. Leichardt, who has now been missing for nearly forty years, met with this or another belt of similar desert country in his last journey from Moreton Bay to Perth, and, according to his well-known perseverance, probably penetrated too far into such a region ever to return. Should such have been the case, there is very little hope of ever finding the slightest trace of his remains. I, in common with other explorers, have always endeavored to discover some traces of this unfortunate party, but as my explorations have always been confined within certain limits, I have not been able to devote as much time to this object as I otherwise should have done. I, however, sincerely trust that someone may yet be able to solve this mystery, and that Leichardt, who must be reckoned amongst our first and greatest explorers, may yet receive a fitting tribute, whether alive or dead, for his noble endeavors in the cause of Australian Explorations, to which it is but too probable that he has sacrificed his life.

The Pre-Historic Arts of the Aborigines of Australia.

(BY THOMAS WORSNOP, Esq., J.P.)

(Read July 30th, 1886.)

The almost total absence of historical records relative to the natives of Australia during the long ages that have elapsed since this continent was first peopled, to a period within the currency of one hundred years from the present time, precludes the possibility, in my opinion, of any satisfactory data being recovered upon which to base historical facts. We are, therefore, compelled to fall back either upon tradition or upon artistic productions from which we may glean some evidence of the past life-history, and intercourse of the aborigines with other nations.

It will be the object of this paper to bring before you pictorial illustrations as delineated by the art-work of the Australian natives, and recorded in the works of various explorers by land or sea. I am not aware that any attempt has hitherto been made to collect and group within a small space these illustrations with a view to their preservation for future reference and investigation.

There can be no doubt, from the testimony of all the voyagers and explorers who in former times have had intercourse with the natives, that in no case did they wear clothing beyond a narrow belt round the waist, which held their shorter implements used in procuring of their daily food or in their tribal wars; and a very narrow head-band or fillet which confined their hair.

The only attempt that has been shown by the natives to adorn their persons, so far as we know, prior to the advent of Europeans amongst them, was in painting their bodies on festive or war-like occasions, and in the tattooing of the upper parts of their persons—if it can truly be said to be tattooing, which consisted in little more than cutting transverse cicatrices or scars, without a particle of ornamental coloring. The parts generally selected for this operation were the shoulders, the back, the breast, and the arms. This practice of tattooing was common all over the continent, varying in character amongst the respective tribes, each having its own distinctive marks, although all patterned upon one monotonous idea.

Whatever of art, therefore, is to be found amongst the natives must be looked for apart from their personal adornments. It can, however, be found carved on their weapons, sculptured on rocks, and painted in caves.

In every country, whether in civilised or in the most barbarous of nations, wherever arms of offence or defence are to be found, there we may also look for the decorative arts, in a greater or lesser degree, for the adornment of the weapons of war or the chase. This is amply shown in "Angas' South Australia," plates 5, 6, 27, 30, 47, and 51.

This leading characteristic exists amongst all the tribes of aborigines on this continent. Their shields, waddies, boomerangs, and throwing sticks are enriched either by color or carving of a certain kind and value. There are, however, in various parts of Australia, widely separated by land or sea, works of sculpture and art, works of decoration of peculiar cunning and handicraft, which perhaps few in this assembly have had the opportunity of seeing.

To-night it will be my task to create in you an interest in the pre-historic arts of the aborigines; a task which will not call upon you for very deep thought, nor for the exercise of very abstract attention, but will, I trust, result in encouraging someone with more time at his disposal and far greater ability than myself to undertake the work of recovering from the mists of time the long-hidden yet graphic delineations of life and character of the natives, and alike show their marvellous imitative skill and imaginative gifts.

I propose, therefore, to show, in chronological sequence as to date of their discovery, memorials of past artistic efforts by the natives, which may prove attractive both by their singularity and striking originality.

Carving, sculpture, and painting being found to exist amongst the aborigines pre-suppose a knowledge of the subject or subjects which the carver, sculptor, or painter endeavors to express by his handiwork. Nevertheless these illustrations do not profess to exhibit a wide knowledge of the world nor much refinement beyond the simple ideas of life possessed by the natives, although there can be no doubt that the rudiments of painting, carving, and sculpture, specimens of which are now before you, testify to faculties of an essentially artistic character. Human as well as animal forms are so well imitated, and actions so thoroughly expressed, as it were in the actual fact, that there is no difficulty in recognising the object which the artist desired to represent, notwithstanding he had only the rudest implements for executing his work.

Art, according to a writer in the "Encyclopedia Britannica," is that "regulated operation or dexterity by which organised beings "pursue ends which they know beforehand, together with the rules "and the results of every such operation or dexterity." The work of human art is done by hand, and carving, sculpture, and painting are, therefore, all works of art, and if we confine our consideration to-night to the sense of the effects of human skill, we shall then bring within the scope of our observation those produc-

tions of human genius and ingenuity which are to be found amongst the natives of Australia, or at the places where they are accustomed to congregate at certain periods or seasons of the year.

I find that it will be impossible for me, in the short space of time I am allowed to engage your attention, to divide my subjects under the three heads of carving, sculpture, and painting with a view to treat of each separately as a special subject, and I must, therefore, place them before you as arranged in the extracts I have made from the various works which have come under my notice.

In order that you may be able to follow me in the identification of the localities where these art productions of the natives are to be found, I have had a skeleton map of Australia prepared, on which are marked, as nearly as may be, the places where the paintings or other art productions are to be found.

Prior to January of the year 1788, when the colony of New South Wales was established, no records exist, that I know of, which treat of the artistic efforts of the Australian aborigines, and the first which so treats is that to be found in John Stockdale's account of "Botany Bay," 1787-1788, under the first Governor—Arthur Phillip—where, under date the 22nd of April of the latter year, he speaks of the natives as follows:—

"The natives of New South Wales, though in so rude and uncivilised a state as not even to have made an attempt towards clothing themselves, notwithstanding that at times they evidently suffer from the cold and wet, are not without notions of sculpture. In all the excursions of Governor Phillip, and in the neighborhood of Botany Bay and Port Jackson, the figures of animals, of shields, and weapons, and even of men, have been found carved upon the rocks, roughly indeed, but sufficiently well to ascertain very fully what was the object intended. Fish were often represented, and in one place the form of a large lizard was sketched out with tolerable accuracy. On top of one of the hills the figure of a man, in the attitude usually assumed by them when they begin to dance, was executed in a still superior style. That the arts of imitation and amusement should thus in any degree precede those of necessity seems an exception to the rules laid down by theory for the progress of invention. But perhaps it may be better considered as a proof that the climate is never so severe as to make the provision of covering or shelter a matter of absolute necessity. Had these men been exposed to a colder atmosphere, they would doubtless have had clothes and houses before they attempted to become sculptors."

And John White, in his journal, under the same month and in the same year, says:—

"His Excellency Governor Phillip, attended by Lieutenant Ball of the navy, Lieutenant George Johnston of the marines, the Judge Advocate, John White, Esq., Surgeon-General to the settlement, three soldiers, and two seamen landed in Manly Cove,

“ on the north side of the entrance into Port Jackson harbor, in
 “ order to trace to its source a river which had been discovered
 “ a few days before.

“ A mile or two to the northward, at the end of this, we fell in
 “ with a small saltwater lagoon, on which we found nine birds
 “ that, whilst swimming, most perfectly resembled the *rara avis* of
 “ the ancients—a black swan. We rounded this lagoon and pro-
 “ ceeded four or five miles westward, along the banks of a small
 “ freshwater river, which emptied itself into it, and had for its
 “ source only a swamp or boggy ground. We pursued our route
 “ westward, proceeding many miles inland, without being able to
 “ trace, by a single vestige, that the natives had been recently in
 “ those parts. We saw, however, some proofs of their ingenuity,
 “ in various figures cut on the smooth surface of some large stones.
 “ They consisted chiefly of representations of themselves in different
 “ attitudes, of their canoes, of several sorts of fish and animals ;
 “ and, considering the rudeness of the instruments with which the
 “ figures must have been executed, they seemed to exhibit tolerably
 “ strong likenesses. On the stones, where the natives had been
 “ thus exercising their abilities in sculpture, were several weather-
 “ beaten shells. The country all around this place was rather
 “ high and rocky, and the soil arid, parched, and inhospitable.”

Again, in support of these statements, we have the testimony of Captain Tench, who in his “ Botany Bay,” a small, thin work published in 1789, thus speaks of these sculptures :—

“ Exclusive of their weapons of offence and a few stone hatchets,
 “ very rudely fashioned, their ingenuity is confined to manufactur-
 “ ing small nets, in which to put the fish they catch, and the fish-
 “ hooks made of bone, neither of which are unskilfully executed.
 “ On many of the rocks are also to be found delineations of the
 “ figures of men and birds very poorly cut.”

It is a matter to be greatly deplored that no efforts were at this time made to preserve these mementos of a past age, the art-work of a tribe which has long since ceased to exist. Art, in those primitive times, although born of ignorance, yet had conquered such steps as were gained, and whilst exhibiting varying degrees of knowledge and of skill, yet was of sufficient historical importance to have warranted its reproduction in some enduring form under the auspices of the Governor and others in authority at the period now spoken of.

I have found no further reference to the artistic productions of the natives until the discoveries of Captain Flinders, in December of the year 1802-3, when we find him in the Gulf of Carpentaria, on the western side, at a cluster of islands, where he says :—

“ I have called this cluster of islands Sir Edward Pellew’s
 “ Group. Under a shed of bark were set up two cylindrical pieces
 “ of stone, about 18in. long, which seemed to have been taken from
 “ the shore, where they had been made smooth from rolling in the

“ surf, and formed into a shape something like a ninepin. Round
 “ each of them were drawn two black circles [Plate A], one towards
 “ each end, and between them were four oval black patches, at equal
 “ distances round the stone, made apparently with charcoal. The
 “ spaces between the oval marks were covered with white down and
 “ feathers, stuck on with the yolk of a turtle’s egg, as I judged by the
 “ gluten and by the shell lying near the place. Of the intention in set-
 “ ting up these stones under a shed, no person could form a reason-
 “ able conjecture. The first idea was that it had some relation to the
 “ dead, and we dug underneath to satisfy our curiosity, but nothing
 “ was found.”

This simple monument is represented in a plate in Flinders’ work, with two of the ducks near it. Indications of some foreign people having visited this group were almost as numerous and as widely extended as those left by the natives.

“ Besides pieces of earthen jars and trees cut with axes, we
 “ found remnants of bamboo lattice-work, palm leaves sowed with
 “ cotton thread into the form of such hats as are worn by the Chinese,
 “ and the remains of blue cotton trowsers. A wooden anchor of one
 “ fluke, and three boat rudders of violet wood were also found. But
 “ what puzzled me most was a collection of stones, piled together in
 “ a line, resembling a low wall, with short lines running perpendicu-
 “ larly at the back, dividing the space behind into compartments. In
 “ each of these were the remains of a charcoal fire, and all the
 “ wood near at hand had been cut down. Mr. Brown saw on
 “ another island a similar construction, with not less than thirty-
 “ six partitions, over which was laid a rude piece of frame-work;
 “ and the neighboring mangroves, to the extent of an acre and a
 “ half, had been cut down. It was evident that these people were
 “ Asiatics, but of what particular nation, or what their business
 “ here, could not be ascertained. I suspected them, however, to
 “ be Chinese, and that the nutmegs might possibly be their object.
 “ From the traces amongst Wellesley’s Islands, they have been
 “ conjectured to be shipwrecked people, but that opinion did not
 “ now appear to be correct.”

“ In the morning of the 14th we weathered all these, and, on the
 “ wind dying away, anchored in $11\frac{1}{2}$ fathoms, about three miles
 “ from a high cliffy island.

“ I went in a boat to this island with the botanical gentlemen,
 “ intending to take bearings from the uppermost cliffs, but the
 “ many deep chasms by which the upper parts are intersected
 “ made it impossible to reach the top in the short time we had to
 “ spare, and a few bearings from the eastern low point were all
 “ that could be obtained. This was called ‘Chasm Island.’ It
 “ lies one mile and a half from a low point off ‘Groote Eylandt,’
 “ where the shore trends southwards, and seemed to form a bay
 “ into which I proposed to conduct the ship.

“ In the steep sides of the chasms were deep holes or caverns,

“ undermining the cliffs, upon the walls of which I found rude
 “ drawings, made with charcoal and something like red paint upon
 “ the white ground of the rock. These drawings represented
 “ porpoises, turtle, kangaroos, and a human hand; and Mr.
 “ Westall, who went afterwards to see them, found the representa-
 “ tions of a kangaroo, with a file of thirty-two persons following
 “ after it. The third person of the band was twice the height of
 “ the others, and held in his hand something resembling the
 “ waddy, or wooden sword, of the natives of Port Jackson, and
 “ was probably intended to represent a chief. They could not, as
 “ with us, indicate superiority by clothing or ornament, since they
 “ wear none of any kind, and therefore, with the addition of a
 “ weapon similar to the ancients, they seem to have made supe-
 “ riority of persons the principal emblem of superior power, of
 “ which, indeed, power is usually a consequence in the very early
 “ stages of society.”

The description here given of the paintings on Chasm Island shows, without doubt, the handiwork of the natives of Australia.

In the survey of the coast of Australia, by Captain P. King, between the years 1818 and 1822, we have the following graphic description of other curious drawings as follows:—

“ The day after we arrived here (that is, in Princess Charlotte
 “ Bay, on the north-east coast of Australia), a boat from the *San*
 “ *Antonio*, conveyed Mr. Montgomery and Mr. Cunningham to
 “ Clack’s Island. The south and south-eastern extremes of Clack’s
 “ Island presented a steep, rocky bluff, thinly covered with small
 “ trees. I ascended the steep head, which rose to an elevation of
 “ 180ft. above the sea. The remarkable structure of this islet led
 “ me to examine the south-east part, which was the most exposed
 “ to the weather. and where the disposition of the strata was, of
 “ course, more plainly developed. The base is of course granular
 “ silicious sandstone, in which large pebbles of quartz and jasper
 “ are imbedded. This stratum continues for 16ft. to 20ft. above
 “ the water. For the next 10ft. there is a horizontal stratum of
 “ black schistose rock, which was of so soft a consistence that the
 “ weather had excavated several tiers of galleries, upon the roof and
 “ sides of which some curious drawings were observed, which deserve
 “ to be particularly described. They were executed upon a ground
 “ of red ochre, rubbed on the black schistus, and were delineated
 “ by dots of a white argillaceous earth, which had been worked up
 “ into a paste. They represented tolerable figures of sharks,
 “ porpoises, turtles, lizards (of which I saw several small ones
 “ among the rocks), trepang, starfish, clubs, canoes, water-gourds,
 “ and some quadrupeds, which were probably intended to represent
 “ kangaroos and dogs. The figures, besides being outlined by the
 “ dots, were decorated all over with the same pigment in dotted
 “ transverse belts. Tracing a gallery round to windward, it brought
 “ me to a commodious cave, overhung by a portion of the

“schistus, sufficiently large to shelter twenty natives, whose recent fire-places appeared on the projecting area of the cave. Many turtles’ heads were placed on the shelves or in the niches of the excavation, amply demonstrative of the luxurious and profuse mode of life these outcasts of society had, at a period rather recently, followed. The roof and sides of this snug retreat were also entirely covered with the uncouth figures I have already described. As this is the first specimen of Australian taste in the fine arts that we have detected in these voyages, it became me to make a particular observation thereon.”

He further says “Captain Flinders had discovered figures on Chasm Island, in the Gulf of Carpentaria, formed with a burnt stick; but this performance, exceeding a hundred and fifty figures, which must have occupied much time, appears at least one step nearer refinement than those simply executed with a piece of charred wood.”

Hitherto I have only been able to show you a copy of Flinder’s discovery on Chasm Island. I am now able to show you a copy of a plate in Breton’s work on New South Wales, published in 1833, of some war implements which he describes; and I ask you to examine carefully the boomerang in this illustration, when you will observe the bust of a man carved thereon. Breton appears from his account to have seen some of the carving done, for he says, in speaking of a battle between two tribes on the Wollomi, “four men and two women of the Comleroy tribe were slain; the men were buried together,” and, at the place of burial, “the trees for some distance around, to the height of 15 or 20ft., were carved over with grotesque figures, meant to represent kangaroos, emus, opossums, snakes, &c., with rude representations of the different weapons they use” [Plate AA]; and again he says “at Port Macquarie they (the natives) perform a remarkable ceremony called ‘Kabarrah.’ The summit of a low hill is chosen, the surface is cleared from grass, &c., and the bark of any trees that are near is carved into rude representations of different animals.”

I shall now be able to refer you to copies of several paintings described in “Sir George Grey’s Journals of Expeditions in Australia, between 1836 and 1839.” The pictures I now show are enlarged in true proportions from those delineated in that work, and the colors are faithful copies of the same, although in some respects the account he gives of them varies as to colors—for instance, of the eyes; but these now shown are fac-similes of those pictured in his work. He says:—

“Finding that it would be useless to lose more time in searching for a route through this country, I proceeded to rejoin the party once more; but whilst returning to them my attention was drawn to the numerous remains of native fires and encampments which we met with, till at last, on looking over some bushes at

“ the sandstone rocks which were above us, I suddenly saw from
 “ one of them a most extraordinary large figure peering down upon
 “ me. Upon examination, this proved to be a drawing at the
 “ entrance to a cave, which, on entering, I found to contain
 “ besides many remarkable paintings.”

“ The cave appeared to be a natural hollow in the sandstone
 “ rock; its floor was elevated about 5ft. from the ground, and
 “ numerous flat broken pieces of the same rocks, which were
 “ scattered about, looked at a distance like steps leading up to a
 “ cave, which was 35ft. wide at the entrance, and 16ft. deep; but
 “ beyond this, several small branches ran further back. Its height
 “ in front was rather more than 8ft., the roof being formed by a
 “ solid slab of sandstone, about 9ft. thick, and which rapidly
 “ inclined towards the back of the cave, which was there not more
 “ than 5ft. high.

“ On this sloping roof, the principal figure which I have just
 “ alluded to, was drawn; in order to produce the greater effect,
 “ the rock about it was painted black, and the figure [Plate B]
 “ itself colored with the most vivid red and white. It thus appeared
 “ to stand out from the rock; and I was certainly rather surprised
 “ at the moment that I first saw this gigantic head and upper part
 “ of a body bending over and staring grimly down at me.

“ It would be impossible to convey in words an adequate idea of
 “ this uncouth and savage figure; I shall therefore only give such
 “ a succinct account of this and the other paintings as will serve as
 “ a sort of description.

“ The dimensions of the figure were :—

	Ft.	In.
“ Length of head and face	2	0
“ Width of face	0	17
“ Length from bottom of face to navel	2	6

“ Its head was encircled by bright red rays, something like the
 “ rays one sees proceeding from the sun, when depicted on the
 “ signboard of a public-house; inside of this came a broad
 “ stripe of very brilliant red, which was crossed by lines of white,
 “ but both inside and outside of this red space, were narrow stripes
 “ of a still deeper red, intended probably to mark its boundaries;
 “ the face was painted vividly white and the eyes black, being
 “ however surrounded by red and yellow lines; the body, hands,
 “ and arms were outlined in red—the body being curiously painted
 “ with red stripes and bars. Upon the rock which formed the left
 “ hand wall of this cave, and which partly faced you on entering,
 “ was a very singular painting [Plate C], vividly colored, representing
 “ four heads joined together. From the mild expression of the coun-
 “ tenances, I imagined them to represent females, and they appeared
 “ to be drawn in such a manner, and in such a position, as to look
 “ up at the principal figure which I have before described; each
 “ had a very remarkable head-dress colored with bright blue, and

“ one had a necklace on. Both of the lower figures had a sort of
 “ dress, painted with red in the same manner as that of the prin-
 “ cipal figure, and one of them had a band round her waist. Each
 “ of the four faces was marked by a totally distinct expression of
 “ countenance, and although none of them had mouths, two, I
 “ thought, were otherwise rather good looking. The whole
 “ painting was executed on a white ground, and its dimensions
 “ were—

	Ft.	In.
“ Total length of painting	3	6½
“ Breadth across two upper heads	2	6
“ Breadth across the two lower ones	3	1½

“ The next most remarkable drawing in the cave was an ellipse,
 “ 3ft. in length, and 1ft. 10in. in breadth [Plate D]; the outside line
 “ of this painting was of deep blue color, the body of the ellipse
 “ being of a bright yellow dotted over with red lines and spots, whilst
 “ across it ran two transverse lines of blue. The portion of the
 “ painting above described formed the ground, or main part of the
 “ picture, and upon this ground was painted a kangaroo in the act
 “ of feeding; two stone spear heads, and two black balls; one of
 “ the spear heads was flying to the kangaroo, and one away from
 “ it; so that the whole subject probably constituted a sort of
 “ charm by which the luck of an enquirer in killing game can be
 “ ascertained. There was another rather humorous sketch, which
 “ represented a native in the act of carrying a kangaroo [Plate E];
 “ the height of the man being 3ft. The number of drawings in the
 “ cave could not altogether have been less than from fifty to sixty,
 “ but the majority of them consisted of men, kangaroos, &c.; the
 “ figures being carelessly and badly executed, and having evidently
 “ a very different origin from those which I have first described.
 “ Another very striking piece of art was exhibited in the little
 “ gloomy cavities situated at the back of the main cavern. In
 “ these instances some rocks at the sides of the cavity had been
 “ selected, and the stamp of a hand and arm by some means
 “ transferred to it; this outline of the hand and arm was then
 “ painted black, and the rock about it white, so that, on entering
 “ that part of the cave, it appeared as if a human hand and arm
 “ were projecting through a crevice admitting light.

“ After having discovered this cave I returned to the party,
 “ and directing them to prepare for moving on, I ordered that as
 “ soon as all was ready they should proceed past the cave, so that
 “ all would have an opportunity of examining it, and in the mean-
 “ time I returned in order to make sketches of the principal paint-
 “ ings. The party soon arrived, and when my sketches and notes
 “ were completed we retraced a portion of our route of this
 “ morning, moving round the sandstone ridge, through one portion
 “ of which I saw a sort of pass, which I thought might perhaps
 “ afford us a means of egress. I therefore halted the party, and
 “ moved up with Corporal Auger to examine it. After proceeding

“ some distance, we found a cave larger than the one seen this
“ morning; of its actual size, however, I have no idea, for being
“ pressed for time I did not attempt to explore it, having merely
“ ascertained that it contained no painting. I was moving on.
“ when we observed the profile of a human face [Plate F] cut out
“ in sandstone rock which fronted the cave; this rock was so hard,
“ that to have removed such a large portion of it with no better tool
“ than a knife and hatchet made of stone, such as the Australian
“ natives generally possess, would have been a work of very great
“ labor. The head was 2ft. in length and 16in. in breadth in the
“ broadest part; the depth of the profile increased gradually from
“ the edges where it was nothing, to the centre where it was 1½in.;
“ the ear was rather badly placed, but otherwise the whole of the
“ work was good, and far superior to what a savage race could
“ be supposed capable of executing. The only proof of antiquity
“ that it bore about it was that all the edges of the cutting were
“ rounded and perfectly smooth, much more so than they could
“ have been from any other cause than long exposure to atmos-
“ pheric influences. After having made a sketch of this head, I
“ returned to the party, and as I had not been able to find a path
“ which would lead us across the sandstone ridge, we continued
“ our course round it, retracing our steps until we reached the
“ stream which had been crossed this morning, and then moved
“ westward, keeping along the southern bank, until we had turned
“ the sandstone range and reached another stream running from
“ the south, which we traced up in the direction of its source,
“ travelling through a series of basaltic valleys of so luxuriant a
“ character that those of the party who were not very tall, travelled,
“ as they themselves expressed it, between two high green walls,
“ composed of rich grass, which the ponies eat with avidity. On a
“ subsequent occasion when we visited this valley, we had to call
“ to one another in order to ascertain our relative positions, when
“ only a few yards apart; and yet the vegetation was neither rank
“ nor coarse, but as fine a grass as I have ever seen.

“ We halted for the night in one of these lovely valleys; a
“ clear stream bubbled along within about fifty yards of us, and
“ about a mile beyond, two darkly wooded basaltic hills raised their
“ heads, and between these and the stream our ponies were feeding
“ in grass higher than themselves. I sat in the fading light look-
“ ing at the beautiful scenery around me, which now for the first
“ time gladdened the eyes of Europeans; and I wondered that so
“ fair a land should only be the abode of savage men; and then I
“ thought of the curious paintings we had this day seen; of the
“ timid character of the natives; of their anomalous position in so
“ fertile a country; and wondered how long these things were to
“ be. With so wide a field of conjecture before me, thought
“ naturally thronged on thought, and the night was far advanced
“ ere I laid down to seek repose from the fatigues of the day.”

The discoveries of Sir George Grey did not end here in respect to these mural paintings of the natives, for three days later, viz., on the 29th March, he records in his journal the following:—

“ Throughout the day we continued gradually the ascent of the
“ range which we had yesterday commenced. The large valley
“ we were in led us by a gentle slope, winding higher and higher
“ amongst the rocky hills. At first it had been so wide as to appear
“ like a plain, but, by degrees, it contracted its dimensions until,
“ towards the afternoon, it suddenly assumed almost the character
“ of a gorge. Just at this point we saw, in the cliffs on our left
“ hand, a cave, which I entered in the hope of finding native
“ paintings.

“ Nor was I disappointed, for it contained several of a very
“ curious character. This cave was a natural chasm in the sand-
“ stone rocks, elevated at its entrance several feet above the level
“ of the ground, from which the ascent to it was by a natural flight
“ of sandstone steps, irregular of course, but formed of successive
“ thin strata resting one upon another, and thus constituting an
“ easy ascent. These successive layers continued into the body of
“ the cave, quite to the end, where was a central slab more elevated
“ than the others, and on each side of this, two other larger ones
“ which reached the top of the cave, and partly served to support
“ the immense sandstone slab that formed the roof.

“ The cave was 20ft. deep, and at the entrance 7ft. high, and
“ about 40ft. wide. As before stated, the floor gradually ap-
“ proached the roof in the direction of the bottom of the cavern,
“ and its width also contracted, so that at the extremity it was not
“ broad^r than the slab of rock, which formed a natural seat. The
“ principal [Plate G] painting in it was the figure of a man, 10ft.
“ 6in. in length, clothed, from the chin downwards, in a red
“ garment, which reached to the wrists and ankles. Beyond
“ this red dress the feet and hands protruded, and were badly
“ executed.

“ The face and head of the figure were enveloped in a succes-
“ sion of circular bandages or rollers, or what appeared to be
“ painted to represent such. These were colored red, yellow, and
“ white, and the eyes were the only features represented on the
“ face. Upon the highest bandage or roller were a series of lines
“ painted in red, but, although so regularly done as to indicate that
“ they had some meaning, it was impossible to tell whether they
“ were intended to depict written characters or some ornament for
“ the head. This figure was so drawn on the roof that its feet
“ were just in front of the natural seat whilst its head and face
“ looked directly down on any one who stood in the entrance of
“ the cave, but it was totally invisible from the outside. The
“ painting was much injured by the damp and atmosphere, and
“ had the appearance of being much more defaced and ancient
“ than any of the others which we had seen. There were two

“ other paintings, one on each of the rocks which stood on either
“ side of the natural seat. They were carefully executed, and yet
“ had no apparent design in them, unless they were intended to
“ represent some fabulous species of turtle; for the natives of
“ Australia are generally fond of narrating tales of fabulous and
“ extraordinary animals, such as gigantic snakes, &c.

“ One of the party, who appeared much amused at these different
“ paintings, walked straight up the cavern, gradually ascending the
“ steps until he reached the slab at the end, and then, taking his
“ hat off with a solemn air, seated himself. To his own and our
“ surprise, his bare head just touched the roof of the cave, and,
“ on examining this part of it, we found it fairly polished, and very
“ greasy, from all appearance caused by the constant rubbing
“ against it of the head of a person whilst seated on the rock.
“ This and other circumstances led us to conjecture that the cave
“ was frequented by some wise man or native doctor, who was
“ resorted to by the inhabitants in cases of disease or witchcraft.
“ We saw many footmarks about, and found other signs of the
“ close presence of the natives, but they themselves remained
“ invisible.

“ The cave was situated in an exceedingly picturesque position.
“ It occupied the corner leading from a wide valley to a narrow
“ ravine, down which came bubbling along a clear deep stream,
“ which passed within a few yards of the cave's mouth. After
“ making sketches of the paintings, and for a few minutes admiring
“ this romantic spot, we moved up the ravine which appeared to
“ lead by a gradual ascent to the summit of the mountain range
“ that now completely hemmed us in both to the southwards and
“ eastwards.”

All writers on the natives of Australia describe them as devoid of the faculty of invention, and if this be so, it is all the more marvellous how and by what means the imagination of the natives could conceive and depict such striking representations as these above described. It is not unreasonable to suppose that the artist who painted these drawings, especially of the one clothed in so perfect and correct a dress, and again of the one first described with the crown or circle of rays of light (symbolising the glory which adorns the heads of saints), must have had intercourse with a people clothed in some such garments, and their heads protected by some covering like unto turbans, as are here represented. Evidently the unknown painter loved his work and worked like an artist, and all these illustrations attest to the more than ordinary character of the untutored savage who drew them.

Between 1837 and 1840 Captain Stokes, who succeeded Captain Wickham in the surveying ship *Beagle*, was in the performance of his duties surveying the islands on the western coast of this continent comprised in those large and numerous clusters called “Dampier's Archipelago,” and he gives the following telling

description of some pictures he discovered on "Depuch Island," one of the Forestier Group. He says :—

"Depuch Island is the centre of a string of islands which bears the name of 'Forestier Group,' fronting the coast at the distance of from one to three miles. It is much larger than the others, being about eight miles in circumference, and reaching an elevation of 514ft. ; whereas the smaller islands, some of which are thickly covered with brushwood and coarse grass, are none of them above 50ft. high. They are of a formation totally different, being of a very coarse gritty yellow sandstone, in many places quite honey-combed, with some low sandhills superimposed.

"Although Depuch Island is one vast pile of reddish colored blocks, scattered about in the greatest possible confusion, sometimes resembling basaltic columns, its outline from seaward appears even. In the valleys, and on some of the more level spots near the summit, there are occasionally slight layers of soil, affording nourishment to a coarse grass, a few bushes, and several stunted eucalypti ; but on the whole the vegetation of the island is extremely scanty. This group of islands is so connected with the main by extensive sandbanks that, at low water, it is possible to walk across to them and of this facility the natives no doubt avail themselves to procure turtle. It appears, indeed, to be only on such occasions that they can visit 'Forestier Group,' as we saw no traces of rafts on this portion of the coast.

"Depuch Island would seem to be their favorite resort, and we found several of their huts still standing. They were constructed of boughs and twigs fixed in the ground, and joined overhead in a circular shape. Over this was thrown a loose matting of twisted grass. The natives are doubtless attracted to the place partly by the reservoirs of water they find among the rocks after rain, partly that they may enjoy the pleasure of delineating the various objects that attract their attention on the smooth surface of the rocks. This they do by removing the hard red outer coating, and baring to view the natural color of the greenstone, according to the outline they have traced. Much ability is displayed in many of these representations, the subjects of which could be discovered at a glance. The number of specimens are immense, so that the natives must have been in the habit of amusing themselves in this innocent manner for a long period of time. I could not help reflecting, as I examined with interest the various objects represented—the human figures, the animals, the birds, the weapons, the domestic implements, the scenes of savage life—on the curious frame of mind that could induce these uncultivated people to repair, perhaps at stated seasons of the year, to this lonely picture gallery, surrounded by the ocean wave, to admire and add to the production of their forefathers.

"These savages of Australia, as we call them, who have adorned the rocks of Depuch Island with their drawings, have in one

“ thing proved themselves superior to the Egyptian and the Etrus-
 “ can, whose works have elicited so much admiration and afforded
 “ food to so many speculations—namely, there is not in them to be
 “ observed the slightest trace of indecency.”

The following list [Plate H] will convey to you an idea of what they are supposed to represent :—

- “ 1. A goose or duck.
- “ 2. A beetle.
- “ 3. A fish, with a quarter moon over, considered to have some
 “ reference to fishing by moonlight.
- “ A native, armed with spear and wommera, or throwing stick,
 “ probably relating his adventures, which is usually done by song,
 “ and accompanied with great action and flourishing of weapons,
 “ particularly when boasting of his powers.
- “ 5. A duck and a gull.
- “ 6. A native in a hut, with portion of the matting with which
 “ they cover their habitations.
- “ 7. Shark and pilot fish.
- “ 8. A corroboree, or native dance.
- “ 9. A native dog.
- “ 10. A crab.
- “ 11. A kangaroo.
- “ 12. This appears to be a bird of prey, having seized upon a
 “ kangaroo rat.”

James Backhouse, a Quaker missionary, visited Australia in 1835 and 1836, and says :—“ At Mount Arthur, near the junction
 “ of the Bell and Macquarie Rivers, they went to see the grave of
 “ a native. On one side of this grave, and extending a third part
 “ of the way round it, there was a trench, formed of two low
 “ banks of earth. On the same side, some undulating lines, and
 “ others forming imperfect ovals were inscribed on the trunks of
 “ adjacent trees.

“ While on a visit to Brisbane, Moreton Bay, he met a party
 “ of natives, some of whom had their hair filled with small white
 “ and yellow feathers, and their bodies tastefully decorated with
 “ broad lines of the same stuck on with gum.”

Speaking of the natives of Stradbroke Island, in Moreton Bay, he says—“ The males of this tribe of aborigines ornament
 “ themselves by cutting their flesh and keeping it from healing till
 “ it forms elevated marks. They cut nineteen ridges that look
 “ like ribs, right across their breasts, from the line of their arm-
 “ pits downwards.

“ One man about six feet high had them as wide as my thumb
 “ and half as much elevated. Their backs and thighs are thickly
 “ marked with lighter zigzag lines of great regularity. The right
 “ shoulder is marked with lines like epaulettes.”

He continues thus—“ One of the natives was busy twisting
 “ rushes to make a dilly or bag. The base of the rushes is of a

“pale color, the portion included in the sheaths at the base, or
“just emerging from them, is of a pinky hue, and the top green.
“By arranging the knots so as to form diagonal lines across the
“bag, the colors are brought into a tasteful order by these poor
“creatures, who have been erroneously represented as below all
“other human beings in capacity.”

At the foot of the Cambewarra mountains (N.S.W.), he met some of the natives having with them hunting and fishing spears, and weapons of war; amongst the latter was a shield which is thus described:—“A shield of wood, having a handle in the centre
“under which is a piece of soft teatree bark to defend the knuckles.
“This shield was whitened, and marked with red lines; sometimes
“they are blackened with blood and soot, under the idea of rendering them proof against injury; and on this black surface the
“figure of a hand is occasionally depicted by means of a white
“powder thrown on before the black is dry, or the whole is dotted
“with white.”

In 1846, Leichardt, under date August 3rd, says—“A native had
“carved a representation of the foot of an emu in the bark of a
“gum tree, and he had performed it with all the exactness of a
“good observer. It was the first specimen of the fine arts we had
“witnessed in our journey.”

J. McDouall Stuart, in his journal under date February 23rd, 1861, at Marchant Springs on the Finke river, says—“The
“natives had made a drawing on the bark of two trees--two
“figures in the shape of hearts, intended, I suppose, to represent
“shields. There was a bar down the centre, on either side of
“which were marks like broad arrows. On the outside were also
“a number of arrows and other small marks. I had a copy of
“them taken. This was the first attempt at representation by the
“natives of Australia which I had ever seen.”

March 15th. The Hugh, James Range.—He here observed on one of the gum trees marks similar to those he saw on the Finke, broad arrows and a wavy line round the tree.

May 15th. Hawker Creek, Ashburton Range.—Stuart here found stuck up in a tree what appeared to be a piece of wood about 2½ft. long, sharp at both ends, broad at the bottom, and shaped like a canoe. Having pulled it down “he found it was hollow.
“On the top of it were placed a number of pieces of bark, and the
“whole bound firmly round with grass cord.” Having removed the covering he found within “the skull and bones of a child.” He says “it is the finest piece of workmanship I have ever seen
“executed by the natives. It was about 12in. deep and 10in.
“wide, tapering off at the ends. Small lines were cut along both
“sides of it. It had been cut out of a solid piece of wood, with
“some sharp instrument. It is exactly the model of a canoe.” He had this carefully redone up and replaced where it was found.

McKinlay's party, while crossing a large plain on the morning

of the 11th of February, 1862, found large stones—much larger than they had seen before—placed side by side, marking out squares, circles, and different kinds of figures, as far as the eye could reach. What they were for, the party could not make out; but it was supposed that the natives held merry-makings, or something of that sort, here.

Mr. Ernest Giles, in 1862, was in the district east of the River Darling, at a mountain known as the “Monaro Mountain,” where he saw, in caves, similar ornamentations in the form of painted human hands. Monaro is some seventy or eighty miles eastward of the present town of Wilcannia, and is now part of a large squatting property. He also saw similar figurings on the Murray, Murrumbidgee and Edwards rivers. The natives at these places also have a custom of ornamenting their shields and opossum rugs with vague and quaint notions of their own ideas of some of the animals, birds, and fishes they caught for food, &c.; and in their cemeteries they usually fence off elliptical figures with logs and brush and small sticks stuck in the ground, and make marks on the surrounding trees which other natives can read and interpret. Mr. Giles also says he has known natives leave marks on the ground, so that the other natives could say and know where to go and find them.

I myself saw, in 1863, on the Wilipa run, north-east of Hollowilina, representations of the feet of emus cut in the solid rock.

We have a description of paintings in Fenn’s Gap, in the MacDonnell Ranges, where Mr. R. R. Knuckey, in 1871, saw several paintings of animals and human beings in various positions; also in the same ranges at a place called Temple Bar, and in Simpson’s Gorge; also in the MacDonnell Ranges were paintings of a similar character—all these were on rocks, and colored by ochre and other substances.

Between Tennant’s Creek and Barrow’s Creek, in the Sullivan Ranges, there are paintings on the rocks of similar nature to those above described as existing in the MacDonnell Ranges.

At the granite crossing, between Pine Creek and Yam Creek, there are rock paintings of a most extraordinary character.

Mr. Ernest Giles, in his explorations in 1872, writes as follows:—
 “Oct. 3rd, Thursday—I rode on a bit further to another over-
 “hanging ledge and found it formed a verandah, wide enough
 “to make a large cave, upon the walls of which the natives had
 “painted strange devices of snakes, principally white, the children
 “had scratched imperfect shapes of hands with bits of charcoal.”

And again, on

“Oct. 5th.—I found several more caves to-day up in the rocks,
 “and noticed that the natives here have precisely the same method
 “of ornamenting them as the natives of the Barrier Range and moun-
 “tains east of the Darling. You see the representation of the human
 “hand here as there upon the walls of the caves; it is generally

“ colored either red or black. It is done by filling the mouth with
“ charcoal powder, if black (if red, with red ochre powder),
“ damping the wall where the mark is to be left, and placing the
“ palm of the hand against it, with the fingers stretched out. The
“ charcoal or ochre powder is then blown against the back of the
“ hand, which is then withdrawn, leaving the space occupied by
“ the hand and fingers clean, while the surrounding wall is all
“ black or red, as the case may be. One device here represents a
“ snake going into a hole. The hole is actually in the rock, and
“ the snake is painted on the wall, and the spectator is to suppose
“ its head is just inside the hole. The body of the reptile is
“ curled round and round from the tail, though the breadth of the
“ creature is out of all proportion as regards length, being 7in. or
“ 8in. thick, and only 2ft. to 3ft. long. It is painted with charcoal
“ ashes which have been mixed with emu fat.”

He then says :—“ Mr. Carmichael has left ornamentations upon
“ the walls of a few choice specimens of the white man’s art,
“ which will no doubt help to teach the young (native) idea how
“ to shoot either in one direction or another.”

Also, on “ Oct. 19th.—The thermometer stood at 68° this morn-
“ ing, and a warm wind came with the rising sun. I gave the
“ horses a day’s spell here to-day to allow them to fill themselves
“ before we made a fair start for the mountain. We passed the
“ day in enlarging the tank, and were glad to find that a rather
“ larger proportional quantity of water had drained into it than
“ we had any reason to expect, there being almost sufficient for one
“ horse to fill himself at one spell. We took a stroll up into the
“ rocks and gullies of those ridges, and found a cave ornamented
“ with the choicest specimens of aboriginal art. The rude figures
“ of snakes were the principal objects, but hands and devices for
“ shields were also conspicuous. One hieroglyph was more striking.
“ It consisted of two Roman numerals—a V and an I—placed
“ together, and representing our figure VI. They were both
“ daubed over with spots, and were painted with red ochre.”

Again, on “ October 20.—We were so overrun with ants and
“ pestered with flies that, in self-defence we took another walk
“ into the gullies, revisited the aboriginal national gallery of paint-
“ ings and hieroglyphics, and then returned to our shade.”

In the year 1873, on the 27th June, Col. Egerton-Warburton
was then prosecuting his remarkable journey across to Western
Australia, starting from the Overland Telegraph line. On this
date he was at the Waterloo Wells, a little within the boundary
line of South Australia, when, he says in his journal, “ I sent
“ the camels on, and went with one companion to the top of a
“ small ironstone hill. The view was anything but cheerful.
“ Found two stone slabs marked, and a round stone hidden in a
“ hole on the top of the hill. Brought them away as curiosities.
“ These slabs were thin flat stones, measuring about 15in. by 6in.,

“ of an oblong shape, and rounded at the ends. They were marked
 “ with unintelligible scrawls. The round stone was about the size
 “ of an orange.”

Unfortunately, these tables of stone and the round stone globe they were compelled to leave behind, with everything else that could be dispensed with, whilst crossing that terrible desert, where their lives were barely saved by the relief sent from Roeburne.

In the same year (1873), Mr. W. Gosse was dispatched on an exploring expedition to the westward, in the course of which he discovered that very remarkable rock, which he named “Ayers’ Rock.” He says:—“ On Sunday, July 20th, I rode
 “ round the foot of the rock in search of a place to ascend.
 “ Found a waterhole on south side, near which I made an attempt
 “ to reach the top, but found it hopeless. This seems to be a
 “ favourite resort of the natives in the wet season, judging from
 “ the numerous camps in every cave. These caves are formed by
 “ large pieces breaking off the main rock, and falling to the foot.
 “ The blacks make holes under them, and the heat of their fires
 “ causes the rock to shell off, forming large arches. They amuse
 “ themselves covering these with all sorts of devices, some of
 “ snakes, very cleverly done, others of two hearts joined together;
 “ and in one I noticed a drawing of a creek, with an emu track
 “ going along the centre.”

Mr. Knuckey, of the Postal and Telegraph Department, saw in 1873 at a place called the “Four Archers” (these are four very remarkable, flat-topped cones of sandstone, appearing like a plateau cut into four detached masses), at Leichardt’s crossing, on the Limmen Bight river, in the Gulf of Carpentaria, several very interesting paintings; this subject, however, I do not find mentioned in Leichardt’s travels, and suppose he missed seeing them.

Mr. Arthur John Giles, in the year 1873, also discovered, at the junction of Sullivan’s creek with the Finke river, carvings on rocks [Plate I], and he informs me that the sketch represents a smooth-faced rock, portion of a rocky cliff about 45ft. high, composed of hard metamorphic slate. The lower portion of the sculptured face has been worn and broken away, forming a sort of cave; from the level of the creek to the lower edge of the sculptured rock is about 15 feet. The perpendicular lines are cut out forming semi-circular grooves about 1½in. in diameter—cut in to a depth of nearly ½in.—all the remaining figures are also carved into the solid rock to a depth of about ½in. The right hand portion has been broken away by storms and other causes. It is far above flood influence now, and a person could not gain access to it without a ladder. None of the natives could give him any information respecting it. It must necessarily have been done at some very remote period of time, as the wearing away of such hard rock to form the large cavity

underneath must have taken a long period of years to accomplish ; coupled with this is the fact that the sand bed of the creek has a further depth of perhaps 15ft. or 20ft.

In a communication I have received from Mr. S. Gason, of Beltana, who was resident for some years amongst the natives, on this interesting subject, he says :—

“ In the MacDonnell Ranges, six miles from Alice Springs, in a large cave, there were paintings made by the aborigines, well-defined parallel lines intersected with footprints of the emu, kangaroo rat, and birds, with the outlines of iguana, hands of men, well sketched, and almost perfect.

“ The parallel lines were of deep red and yellow colors, with brown and white borders ; the footprints of light red, light yellow, and black ; the outlines of the animals and hands were of red, yellow, white, and black, wonderfully (considering it was done by savages) displayed and blended. All the paintings were in good preservation, and evidently touched up occasionally, as they looked quite fresh.

“ I can only conjecture that these paintings were left as a record, a life-long charm, against the total destruction of the above animals. The paintings were seen by me in the year 1873.”

He then goes on to explain that “ on the Cooper, Herbert, and Diamantina rivers of the North there are no paintings in caves, but in special corroborees the bodies of the leading dancers are beautifully painted with every imaginable color, representing man, woman, animals, birds, and reptiles, the outlines being nearly faultless, and in proportion, independent of the blending of the colors.

“ These paintings take about seven or eight hours hard tedious work for two men, one in front, the other at the back of the man who is to be painted, and when these men who are painted display themselves, surrounded by bright fires and rude torches, it has an enchanting effect to the others. After the ceremony is over, the paintings are allowed to be examined, and the artists congratulated or criticised.

“ On other grand occasions—the ‘ Mindarie ’ (*i.e.*, peace festival)—the natives decorate the bodies, face, legs, and feet, with the down of wild fowl, stuck on with their own blood. The ceremony of taking the blood is very painful, yet they stand it without a murmur. It takes five or six men four to five hours to decorate one man. The blood is put on the body wet, and the down stuck on the blood, showing, when finished, outlines of man's head, face, feet, snakes, emu, fish, trees, birds, and other outlines representing the moon, stars, sun, and Aurora Australis, the whole meaning that they are at peace with the world.

“ At other ceremonies, after returning from ‘ Bookatoo ’ (red ochre expedition), they paint a few of the dancers with all the colors of the rainbow, the outlines showing all the principal

“ species of snakes. They are well drawn and colored, and take
 “ many hours of labor to complete.

“ These paintings of snakes are done for the purpose of having
 “ a good harvest of snakes. The women are not allowed to attend
 “ at this ceremony, as it is one of their strict secret dances.

“ Both women and men are very good in sketching and coloring.
 “ Drawing animals is preferred. Dogs, emu, kangaroo, rat,
 “ snakes, fish, and birds are frequently sketched by old and young
 “ on the sand, on pieces of bark, and on stones; but they merely
 “ do it for pastime.

“ Some of their bags, which take months to make—made from
 “ the native cotton (*Mootena*) bush, spun and wove into bags of
 “ all shapes (oval, round, square, conical, and triangular), with the
 “ brightest of colors artistically blended, and regularly marked like
 “ a piece of carpet—look very pretty when finished; and one is
 “ surprised at the workmanship and the coloring.”

On the 15th July, 1874, Mr. John Forrest, on his overland expedition from Champion Bay eastwards to the telegraph line, camping at Alexander Springs, relates that he “ found two native
 “ graves close to his camp, &c. We also found about a dozen
 “ pieces of wood, some 6ft. or 7ft. long and 3in. to 7in. wide, and
 “ carved and trimmed up. All around were stones put up in the
 “ forked trees. I believe it is the place where the rite of circum-
 “ cision is performed.”

The pieces of wood here referred to were marked with grooves along them, and cross grooves at intervals, evidently not intended for use, but for display and ornament. They were tied in bundles, and placed in the branches of a tree for security. They had been darkened by rubbing in with grease and ochre, but were not of a bright color.

Mr. Winnecke, who was exploring in 1879, saw several of these drawings on rocks and in caves, and describes them as follows:—

“ The group of native drawings which I have roughly shown here-
 “ with [Plate J] are found in several large caves near Mt. Skinner
 “ and Ledan’s Hill, in latitude 22° 30’ south and longitude 134° 30’
 “ east. The natives appear to have selected the smooth surface of
 “ granite rocks inside several large caves, which spots are not
 “ subject to the influence of wind or rain. These caves are re-
 “ sorted to by the natives during excessive rainy seasons, as
 “ indicated by their camp preparations, and it is beyond doubt
 “ that these drawings have been performed during these periods of
 “ forced inactivity by some artistically-inclined native. Those I
 “ am alluding to are somewhat numerous in these particular
 “ localities, and present an uniform appearance.

“ Fig. No. 1 apparently represents a heart pierced in the centre
 “ by a spear. The outline of the object representing the heart has
 “ been delineated with red ochre, whilst the spear has been drawn
 “ with a burnt stick or piece of coal. I have only seen this par-

“ ticular sketch in one instance, where four distinct drawings of
 “ the same object, as shown in Fig. 1, exactly below and equidistant
 “ from each other, have been made in anything but a crude manner,
 “ the outline having been carefully and very distinctly traced on
 “ the rocks, showing a degree of perfection scarcely to be antici-
 “ pated from these wild inhabitants. The breadth of the heart is
 “ about 5in. and its length about 6in. The length of the spear
 “ portion is about 3ft.

“ Drawing No. 2 consists of two parallel lines about 6in. apart,
 “ with regular marks between, and probably represents the native’s
 “ notion of a creek with emu tracks traversing its bed. This
 “ drawing has been made with the assistance of a coal, and is
 “ found depicted on smooth rocks in various localities, especially
 “ near Ledan’s Hill, the Lander river, and parts of the Mac-
 “ Donnell Ranges.

“ Fig. 3 has been drawn both with coal and red ochre. It is
 “ found in many places, and seems to be a favourite drawing of
 “ the natives. I have found it depicted in several localities in the
 “ interior of Australia. It is generally supposed to represent a
 “ hand.

“ Fig. 4.—This figure is made by the natives in the following
 “ manner:—Placing their extended hand against a smooth rock,
 “ after having previously moistened the same, they fill their
 “ mouths with powdered charcoal, which they then blow violently
 “ along the outline of their extended hand, thus leaving the
 “ portions of rock covered perfectly clean, whilst the space
 “ between their fingers and elsewhere round about becomes
 “ covered with the black substance. This drawing is not very
 “ common. I found several specimens near the Sandover river.
 “ I have, however, been informed that it has been seen in other
 “ and distant parts of Australia.” Very interesting groups of
 native drawings are to be seen in the caves of the Emily Gorge
 in the MacDonnell Ranges; many of these drawings represent
 life-size objects.

Mr Brown, the South Australian Government Geologist, in-
 forms me that he has seen at Paratoo and Oulnina the shape of
 feet of the kangaroo delineated in outline on the face of the rocks
 by some sharp-pointed instrument, and at Blanchewater not only
 the outlines of the feet of this animal, but also the form of the
 human foot was so outlined.

He further says that he has seen animal forms, such as
 kangaroos, emus, &c., painted on the rocks in caves in the York
 district in Western Australia, and also in caves in New South
 Wales.

Before closing this rather long paper, I wish to refer to an
 extract, under date August 15th, 1883, from Mr. D. Lindsay’s
 “ Exploration through Arnheim’s Land,” which runs as follows:—

“ Just after starting back on the 13th, when travelling through a

“ patch of fine open-forest country—high stringybark and other
 “ trees, with good red clayey-loamy soil—we came on the top of a
 “ very large native encampment, quite a quarter of a mile across, on
 “ which was the framework of several large ‘ humpies,’ one having
 “ been 12ft. high; and some small enclosures, as if small game
 “ had been yarded and kept alive. The natives had excavated five
 “ holes in the red clayey soil, three of which were oval—one I
 “ measured was 18ft. long and 8ft. wide and 4ft. deep, with the
 “ earth thrown up in a heap on one side; two were semicircular,
 “ 3ft. deep and 3ft. across, with a diameter of 20ft. The ‘ humpies’
 “ were of a superior description to anything I have seen in the
 “ Territory. This camp must have contained quite 500 natives,
 “ and have been the scene of some great festival, the corroboree
 “ or dancing-grounds being numerous and well-worn.

“ About two miles north of the main camp there is the remains
 “ of another large camp, with a painted post, 4ft. high 9in. in
 “ diameter, set firmly in the ground; also about twenty pieces of
 “ paper-bark, each piece 3ft. long, and bound up with creepers.
 “ These pieces were then placed in the form of a star, with the
 “ inner ends embedded in the ground.”

In the *Australasian* of July 24th, 1886, in a report on “ The
 “ state of the Kimberley country generally,” is the following extract
 from the letter of Mr. O'Donnell:—“ During my travels up
 “ country I discovered some caves in the granite country, con-
 “ taining drawings by the natives similar to those found by
 “ Captain Grey on the Glenelg many years ago. I had sketches
 “ taken of these.”

Sir George Grey refers to the nature of and source from whence
 the colors used in the paintings which he saw in the caves, in the
 following terms:—

“ In the painted caves, on the north-western coasts, five colors
 “ were used, red—of which there are several shades—yellow, blue,
 “ black, and white. With the exception of blue, these colors are
 “ all known to the natives of the whole continent. The red they
 “ either dig up from the earth, fit for use, in the form of red earthy
 “ pebbles, or they find it in the form of a brilliant yellow clay,
 “ which they beat, clean, and dry, leaving it exposed to the air for
 “ several days, when they bake it in a bark basket, and then, if
 “ the clay is good, and it has been well prepared and burnt, it is
 “ nearly as bright as vermillion. In some parts of the continent,
 “ however, no good clay can be found, and in this case, at their
 “ annual fair, where they meet to exchange certain commodities
 “ only locally produced, this brilliant red ochre is considered a
 “ very valuable article of traffic. Yellow they obtain from several
 “ sources; the most common is the yellow clay, from which the
 “ red is afterwards produced; but they also procure it from a stone,
 “ which is traversed by veins of yellow earth; from the interior of
 “ the nest of a species of ant, which collects a yellow dust; and

“ from a sort of fungus from which a similar dust is also obtained.
“ The black is nothing but finely-pounded charcoal. The white
“ is a very fine greasy species of pipeclay, common all over Aus-
“ tralia, and which they use either wet or dry. How the blue
“ color, used in the caves on the north-west, was obtained, I do
“ not know ; it is very dark and brilliant, and closely resembles
“ the color obtained from the seed vessel of a plant very common
“ there, and which, on being broken, yields a few drops of a bril-
“ liant blue liquid. I therefore imagined that it was procured from
“ this source.”

With regard to the age of these paintings they had no clue whatever to guide them. It is certain that they are very ancient, for although the colors were composed of such perishable materials, they were all mixed with a resinous gum, insoluble in water, and no doubt, when thus prepared, they would be capable of resisting for a long period the usual atmospheric causes of decay. The painting which appears to Sir George Grey to have been the longest executed was the one clothed in the long red dress, but he came to this conclusion solely from its state of decay and dilapidation, and these may possibly have misled him very much ; but whatever may be the age of these paintings, it is scarcely probable that they could have been executed by a self-taught savage. Their origin, he thinks, must still be open to conjecture.

But the art and skill with which some of the figures are drawn, and the great effect which has been produced by such simple means, renders it most probable that these paintings must have been executed with the intention of exercising an influence upon the fears and superstitious feelings of the ignorant and barbarous natives ; for such a purpose they are, indeed, well calculated, and an attentive examination of the arrangement of the figures first discovered, more particularly of that one over the entrance of the cave, will tend considerably to bear out the conclusion here advanced.

It is a singularity worthy of remark, that the drawings found in the vicinity of the coast were nothing but the rudest scratches, whilst they gradually improve as we proceed in our examination of those found inland. Those described by Sir George Grey were some seventy miles from the sea-coast, at the nearest point as the crow flies, and those near the Alice Springs are in the very heart of the continent.

I have no doubt that were this subject followed up by intelligent explorers, and others who may be brought into contact with examples of native art, much profit and great pleasure would be derived from their reproduction and publication. With the single exception of those described by Sir George Grey, a family likeness marks them all—the details are everywhere the same—no variations show themselves. All are imitative, and are the resultant product of untutored taste, although diligent research

may bring to light other illustrations of the awakening consciousness of the savage, who may have tried in carving, sculpture, or in painting to express the artistic tastes he felt working within him.

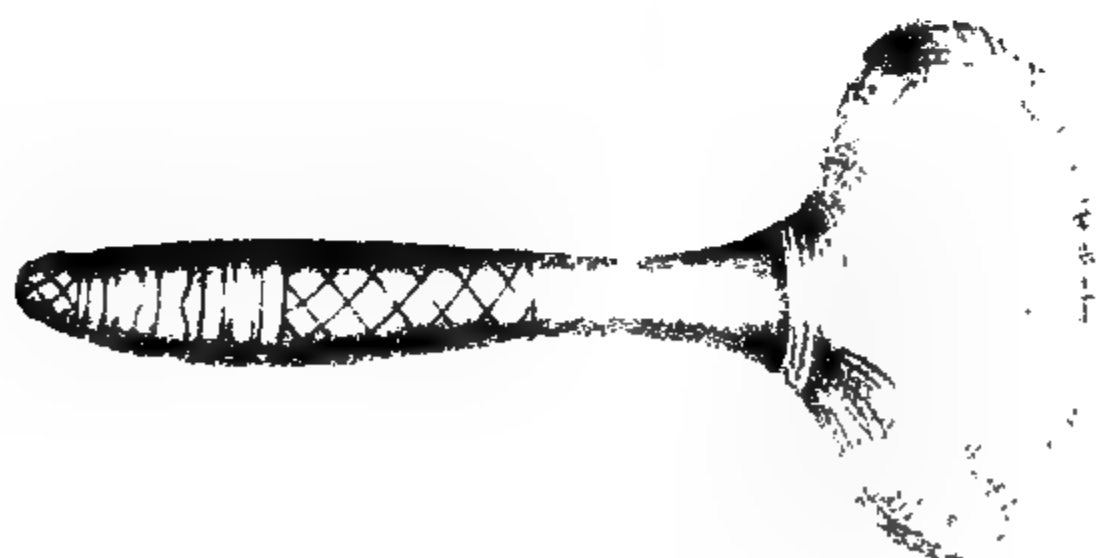
I have to call your attention to the inscription on the headdress of figure G, which appears to me to be an attempt at, and to have some of the elements of, writing. I would also refer to the two tables of stone found by Colonel Warburton hidden away with so much care, and to his statement that they were covered with marks. May there not be a lost language here? Each of these marks may have its phonetic value, and may bear witness to some tribal religious rite or ceremony—to some peculiar law or historic fact. We know that each tribe has its distinctive and expressive mark in tattooing its members, which tells in words, as plainly as words can tell, the tribe to which he or she belongs.

The artistic productions of the natives have not been hitherto much studied, notwithstanding they are both numerous and interesting. Those which have been examined have been so but superficially, and many have yet to be discovered. A thorough investigation of these art-labors of the aborigines—vestiges of by-gone times—will, I doubt not, reveal much of that aboriginal period now wrapped in the darkness of past ages. The contemplative, as well as the curious mind, may find employment enough in prosecuting this interesting subject of inquiry, and in discovering further “testimony from the rocks.”

We are told by many of the earliest writers, who record their meetings with and observations on the natives, of the singular paintings and feathery decorations with which they adorn their bodies on the occasion of some grand festival or religious rite. Amongst these may be mentioned the veteran explorer, Captain Sturt, who, on his journey to the centre of Australia from Adelaide, states that, on arriving at some native huts between the N.E. point of Lake Blanche and Mount Arrowsmith, whilst endeavoring to make himself understood by the native women, a native made his appearance over a sandhill at the back of the huts, “he was painted in all the colors of the rainbow, and armed to the teeth with spear and shield.” You have heard Mr. Gason on the subject, and I can confirm these statements from my own personal observations, made many years ago, in regard to the natives on the lakes; in the south-east; on the Murray and Darling rivers; on the north-eastern plains; in the far north, and amongst those tribes resident to the north-west of Lake Torrens.

In closing this paper let me advert to the wide distribution of these native paintings, carvings, and sculptures, and to press on your attention the absolute necessity of attempting in our time and day to carefully collect and preserve copies of all specimens of the artistic powers of the natives (where it is possible so to do), which may come under observation, so that the weight of personal knowledge may accompany them, or, like the tribes themselves, these relics will soon disappear and be no more known.

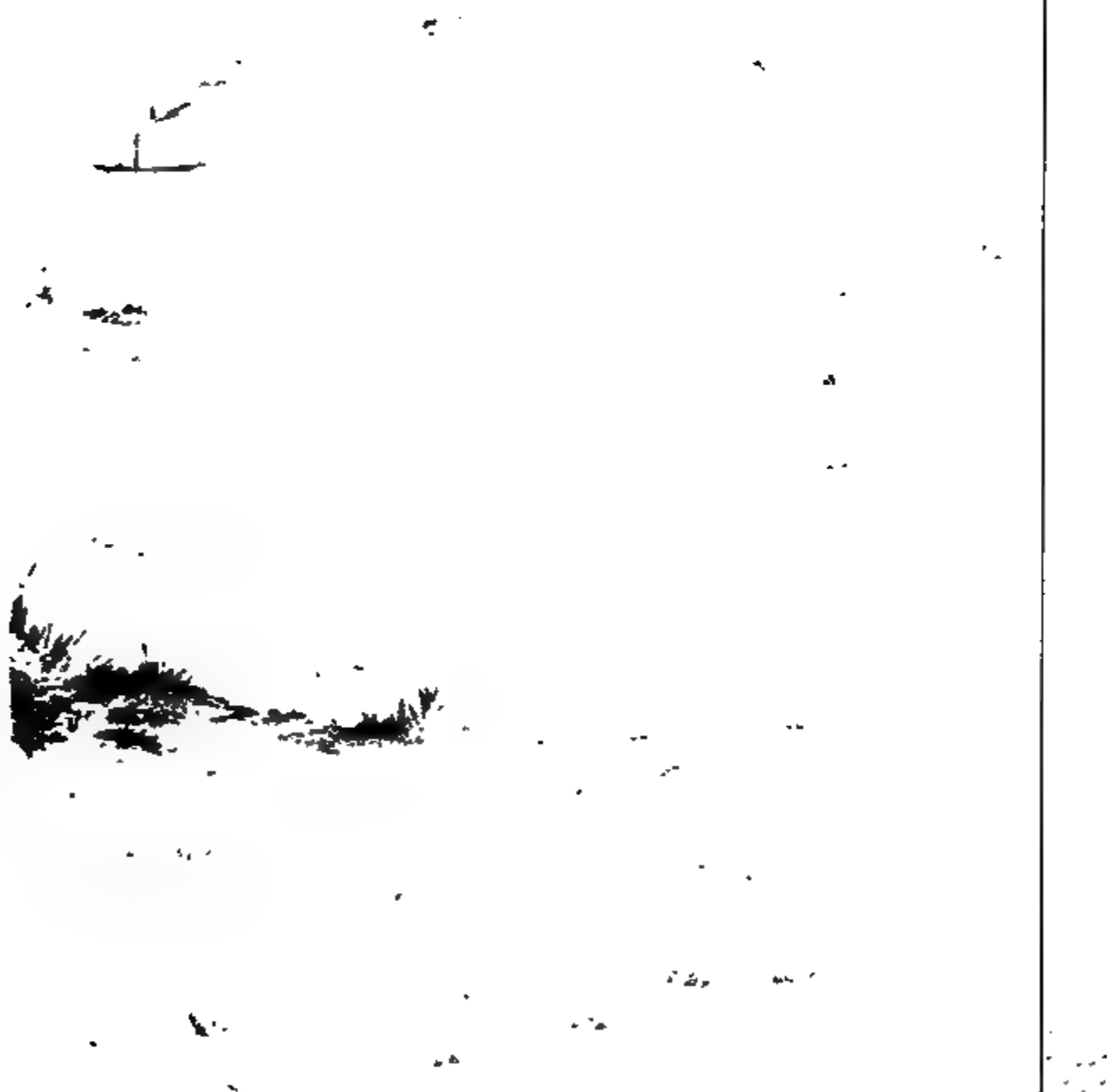
AA



E SPILLER LITH

40

A



E. SPILLER 1770

Reduced from Plinder's Voyage "Terra Australia."

44

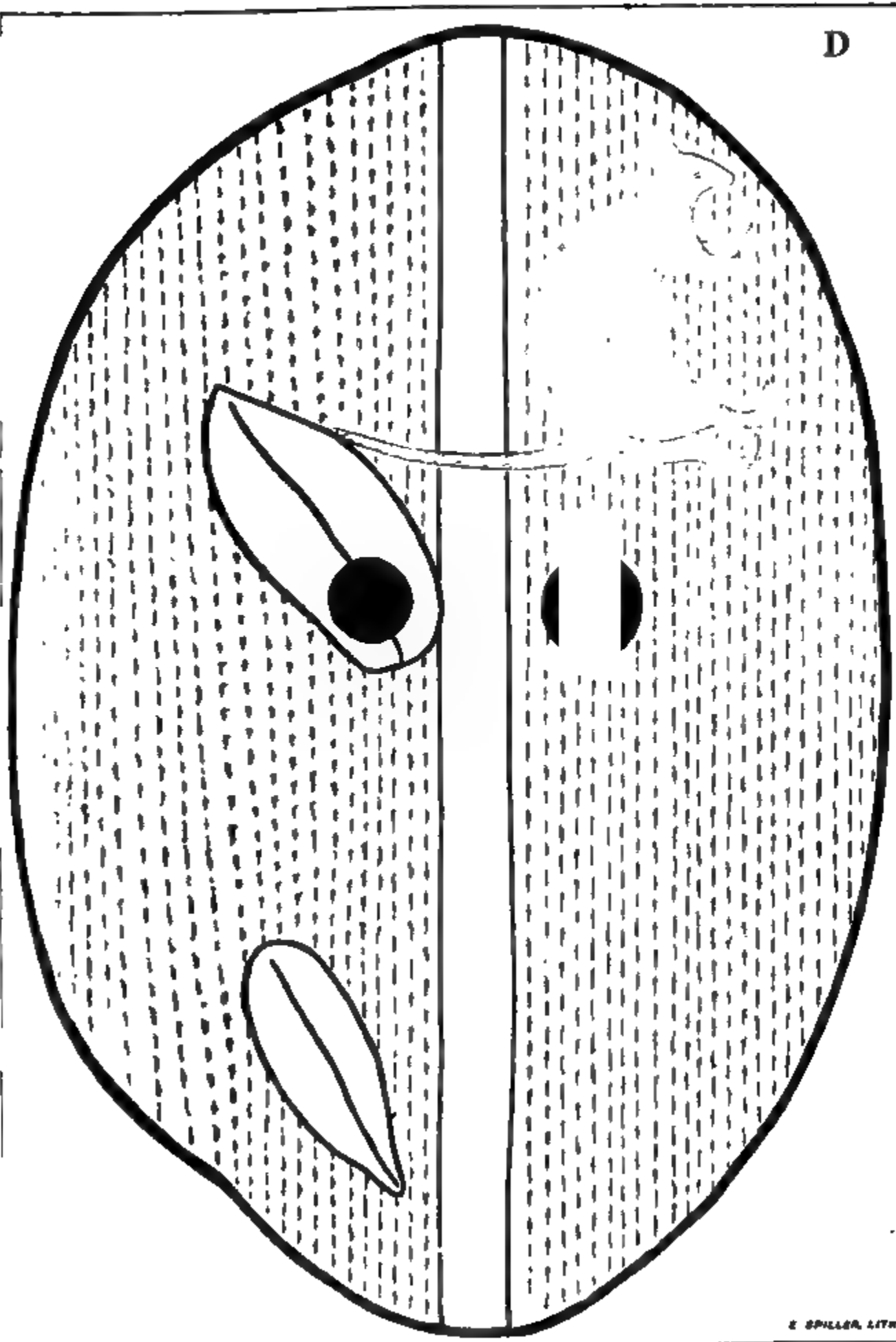
B

R. SPILLER, LITH.

From Gray's Expeditions in Australia.

44

D



E. SPILLER, LITH.

From Gray's Expeditions in Australia.

44

E

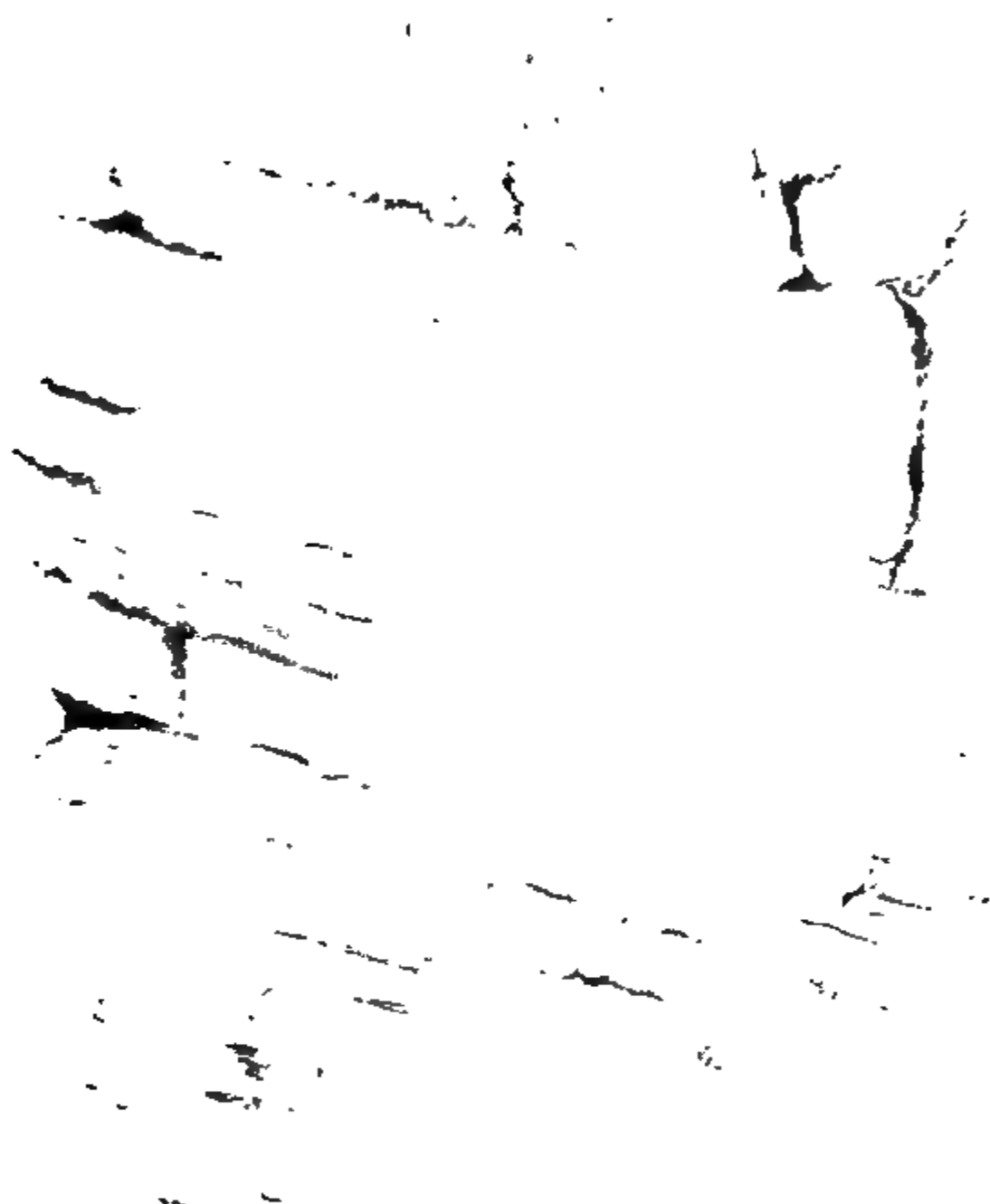


E. SPILLER LITH.

From Gray's Expeditions in Australia.

44

F



G. SPENCE, LITH.

From Gray's Expeditions in Australia.

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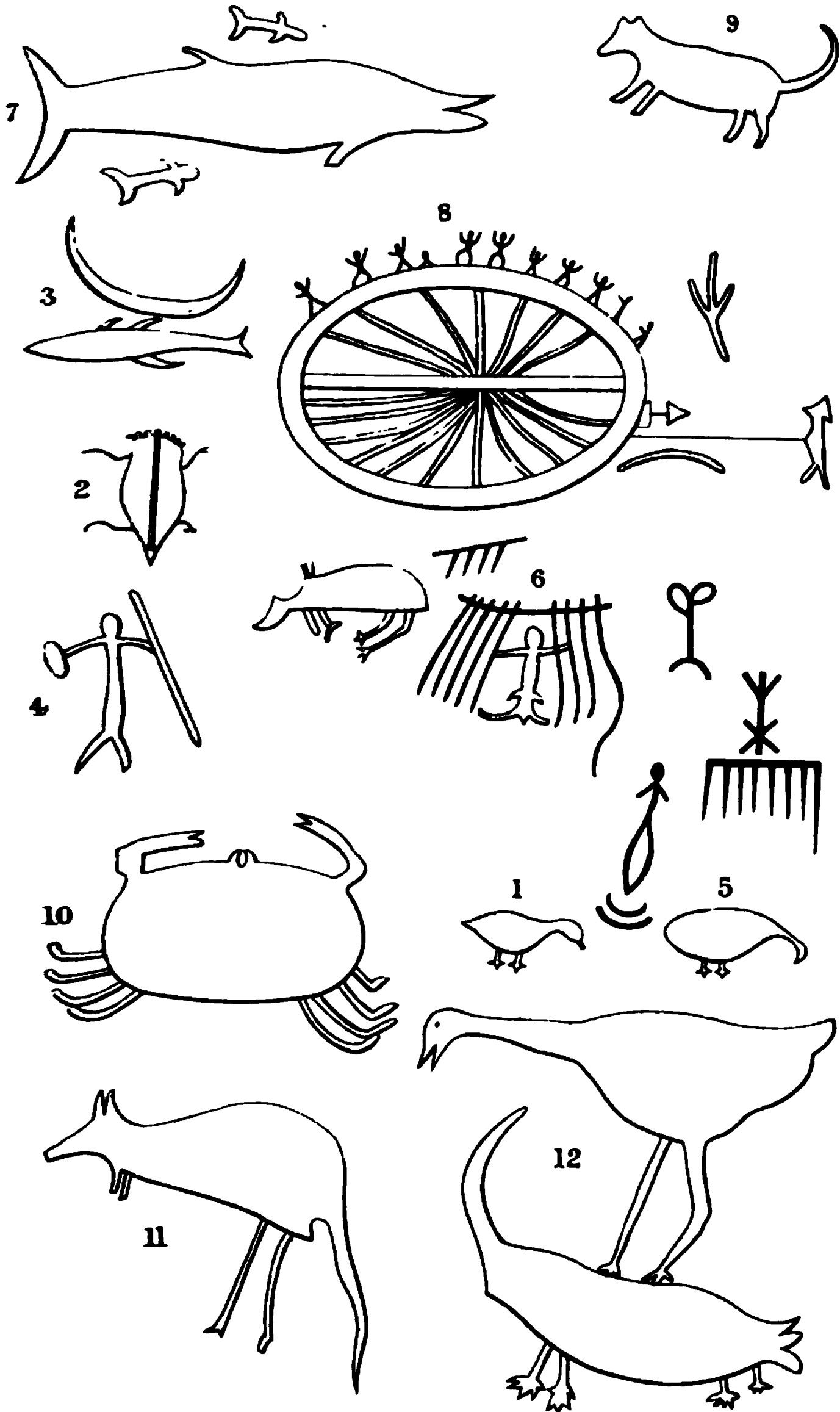


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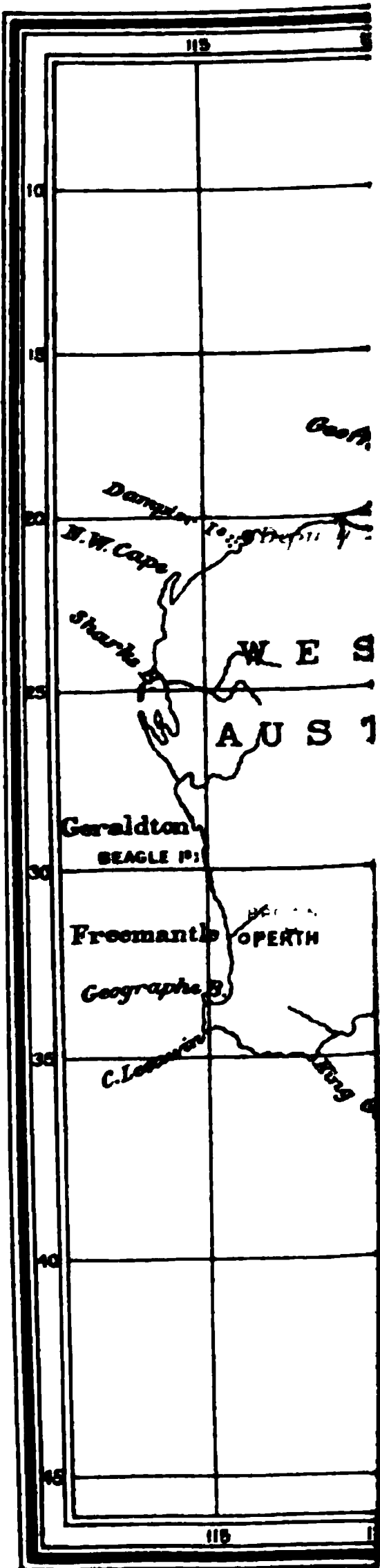


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The Customs. Religious Ceremonies, etc., of the "Aldolinga" or "Mbenderinga" Tribe of Aborigines in Krichauff Ranges, South Australia.*

[By F. E. H. W. KRICHAUFF, Esq., M.P.]

(Read August 30th, 1886.)

I have collected, arranged, and translated the following particulars about the customs, religion, and other matters in connection with the aboriginal tribe "Aldolinga," who live around the Mission Station in Krichauff Ranges, Central Australia, from information forwarded by the missionary, Rev. J. Kempe, of Hermannsburg, on the Finke river, and from a letter dated July 1st, 1886, written by the missionary, L. Schulze, of the same place, kindly lent to me by Rev. G. A. Heidenreich, of Bethanien. This gentleman, who is Superintendent of the Mission Station, some years ago visited the Aldolinga tribe, and estimates their number at about 160 souls. He also thinks that they belong to the Waldon tribes. Many of them are always at the Mission Station, where the Government rations are issued by the missionaries to the aged, blind, and infirm. Three or four of the tribe are blind. The missionaries have very often to supplement the Government supplies, and they give also meat, fruit, and vegetables in return for work done in the house and garden, and for assistance in other pursuits. The children and many of the adults attend the school, and also Divine service, with encouraging results.

The Aldolinga tribe (or westerly tribe) inhabit the country between the James and MacDonnell ranges along the river Finke, and is divided into four clans—Bunanke, Burule, Baltare, and Kumare, which are also their class names, or a kind of caste distinction. So far as known they have, however, no "totem" or symbol of the tribe. Polygamy is practised, if there are more women than men, marriages being regulated as shown in the following table :—

A man who is a	Can only marry a woman who is a	Their children are
Bunanke	Burule	Baltare
Burule	Bunanke	Kumare
Baltare	Kumare	Bunanke
Kumare	Baltare	Burule

They appear to have no marriage ceremonies. A Baltare, for instance, speaks simply with the father and mother of a girl, who is a Kumare, and claims her to be his wife, because she is a Kumare. Whenever a man takes a wife she ceases to belong to her class, and becomes one of the class of her husband. Blood relations intermarry constantly. The tribe are not cannibals. The

* See page 77 herein.

weapons used are spears, shields, womera, and boomerang. Before they came in contact with Europeans their implements were only flintstones fixed on a piece of wood with resin and sand, and twine formed from the hair of animals.

There are some traditions current amongst them, but it is difficult to fathom their real meaning, and still more so to trace their origin. It is the opinion of the Rev. J. Kempe that the tribes in Central Australia were originally one nation, and more cultivated than now-a-days. It is quite certain that many of the women had Jewish names such as Judith, Paula, Mirjam, before they ever saw a white man. The language of all is very similar, the composition and grammar being everywhere much the same. The songs used at their corroborees are, so far as Mr. Kempe knows, the same. The words of these songs are not to be found at all in the language of the Aldolonga tribe, and their meaning is actually not understood. These songs may therefore be remnants of better times, when they had probably a religious meaning; the practice of circumcision must also have had more of a religious meaning than now.

To persons who do not constantly mix with them it would appear as if the Australian aborigines had no religion, and live like animals. This opinion has been published by persons who ought to have made first a thorough inquiry, after having gained the confidence of a tribe and learnt the language. The missionaries have now been able to ascertain many of the religious customs at the festivals of this tribe, who live in the neighborhood of Hermannsburg. All the festivals or dances have a religious character, and are not merely amusements, like dancing in Germany and elsewhere amongst civilised nations. At first it was difficult to ascertain the origin and motives for these meetings, but it was observed that when the time for any festival was near at hand the natives were daily talking of it, and seemed to prepare for it, until they became actually inspired. When the day arrived they asked the missionaries to let them have their evening meal earlier than usual, as otherwise they might be rather late at the place where the festival was to be held. After their meal they would run as fast as they could, each one trying to be first.

Having acquired a better knowledge of their language, the missionaries have now been able to understand that each festival is held to give expression to one of their wishes, and for praying to a higher Being in the hope of having their prayer granted. Every festival is called "tjurunga." They speak, for instance, of an "emu tjurunga," a "kangaroo tjurunga," which is held for the purpose of praying to the god of one of these animals to multiply their numbers, as the desire of the natives is to obtain plenty of them for food. For these festivals they paint or bedaub and attire themselves to look, in their opinion, extremely beautiful, but we should say really terrible, hellish. They then view themselves with

the greatest satisfaction, and seek to draw your attention. Their ornamentations, however, make one almost shudder, especially when seen at night. These and their exclamations are in keeping with their festivals. If, for instance, they celebrate an emu tjurunga, they try to make their bodies, by means of paint and other ornaments, such as feathery appendages, &c., to somewhat resemble an emu, and their whole behaviour and movements, while dancing, as well as their cries, are in imitation of an emu. Those not taking part in the dance, sing, but only one verse, which is constantly repeated, and they beat the time with sticks, hit one against another, while they sit in a stooping position, crowded together as if entangled, and almost one upon another. Whole nights are thus passed without any apparent weariness, while, on the contrary, if they are kept at work their faces often exhibit displeasure and discontent.

The god of the emus is called "Merrenna"; of the kangaroos and euros, "Indiara"; and of the wallabies, "Uranama." The god of mankind, or at all events, of their tribe, is called "Malbanga," and his two wives, "Nangala" and "———" At the festival of Malbanga they pray to him to give to the tribe many "Atna," that is, circumcised, or men. Their gods do not live together, or even in the same locality. Malbanga lives in their heavenly paradise or "laia," to the north of the mission station. He once made a journey to the neighborhood where the tribe now live, and his wives, while there, gave birth to children, who remained when Malbanga and his wives returned. The descendants from these children form the present tribe.

After death it is believed their souls follow Malbanga to "laia." If asked whether they would like to go there, they reply that they do not wish to die, and actually make an angry face if you talk of death. Their demeanor is awful whenever a death occurs, and the nothingness of their religion becomes at such a time fully apparent. Their paradise, or "laia," they describe as follows:—Those who are there have a good time of it; not being obliged to work, they can constantly lie on one side, and the finest fruits, which they know and like, grow there in abundance. They eat there only "mana," that is vegetable food, such as fruit, roots, &c. Meat, however, cannot be had, as the animals live there for ever. In the middle of their paradise is a large water, or lake, from which all fish come. The lake is under the control of another god, called "Tjaubutmanja," and his two sons, who prevent the lake from running over or breaking its banks, which, the natives say, occurred once a long time ago; and they believe it will occur again if white-fellows kill many more of their tribe by shooting them.

They pray only to the above five gods. All of them, the good supernatural beings, they call also "altgiva," as well as the firmament, with the sun, moon, and stars; also the earth, and any things specially remarkable. The word "altgiva" signifies

that these had an everlasting existence. Therefore, although sun and moon are not gods to pray to, they are yet considered as very important, and the following are their ideas as to the change of the seasons and the phases of the moon:—The sun is a woman with a firestick in her hands, every year being replaced. At first she is young, and the firebrand burns but a little—then it is winter; as the flames gradually increase, the summer arrives; and when the firestick again diminishes, the woman has already grown old, and must make room for a young one. The sun gives to mothers fruitfulness, yet they do not pray to him. The moon they believe to be an “atna,” or circumcised man, and every moon he is replaced. When first making its appearance it is a young man, grows gradually bigger, until it decreases and dies from age and weakness, thus making room for a new moon or another young man. The appearance of the new moon is generally watched for, and is pointed out with great pleasure. The stars are “alxina,” and they like them well.

But the natives of this tribe do not only believe in a number of good superior beings. They believe also in as many evil beings, who work mischief, and whom they fear. The nebulous stars in the firmament are the large venomous teeth of a gigantic serpent ready to bite. As soon as they are visible the natives do not speak aloud, but keep as quiet as possible so that the serpent may not discover them. A comet is an enemy with a long spear which he has come to show to them. The eclipse of the moon is caused by the devil (whom they call “erinja” or *rinja kuna*) placing himself in front of the moon. There are, however, many erinja to whom they ascribe all evil things. Their abode is in hills and deserts. They rove about principally at night; but they cannot go northwards, where “laia” is situated. A whirlwind is caused by an erinja, which they fear very much, and use charms and formulas of conjuration against them.

The souls of the enemies of the tribe, “mongopanna,” also rove about at night trying to do harm. Every sickness or death is ascribed to such an enemy.

The treatment of diseases is very often simply ridiculous. A man pretends, for instance, to cure sore eyes. He goes secretly away some distance to search for some little stones, pieces of wood, &c., which he hides in his mouth. On his return he applies his mouth to the inflamed eyes, and soon afterwards he ejects the small stones and pieces of wood into his hands and says, “All these were in your eyes causing the inflammation.” A wound is tied with string above and below, and sand is put upon it to prevent the flies from touching it. The magician, who is also a physician, tries to help by sucking, pinching and pressing of the body, or he cuts into the air with his arms or a stick backwards and forwards in all directions. If the patient dies, all those present make terrible gestures, at the same time howling and shrieking. Women thrust

holes into their heads with pointed sticks; men make cuts into the backs of each other so that they are covered with blood, such being their greatest sign of condolence. If men settle their quarrels with their enemies the sign of such reconciliation is also a cut from which blood is flowing. It is, so to say, a confirmation or oath. Although using witchcraft to protect themselves from their enemies, they have no god to whom they could pray for help, and have consequently no festival of that kind.

The external signs of mourning are the following:—A man makes a white bar over his forehead and breast; women make their heads and breasts white all over. At the interment all present begin a sort of mourning song; some take the corpse, put it in the grave, generally with the face to the west, and stamp in the sides of the grave, until filled to the level, but leave the heap of sand, dug out in making it, untouched. Thereupon they cover the grave with dry wood and return to the other mourners, when the mourning songs are continued till late in the night. Lately in one case a sort of *jungera* (corroboree) was held around the grave, one woman poured water out of a vessel on to the grave, while the men were dancing around, howling most frightfully. This was continued for two days by both men and women, and afterwards for two weeks more by the women only.

To rescue the aborigines from their follies and superstitions is not an easy task. They still hold their festivals, but further away from the mission station, and they make less outward show of them than before. They go in silence, and return in silence. A few months ago some of the men and the elder boys who had attended the school at the Mission expressed a wish to be baptised. These receive now twice a week, in the evening, religious instruction, preparatory to their being christened.

[For additional information respecting this tribe, see page 77 herein.]

Lake Amadeus and the Vicinity.

(By W. H. TIETKENS, Esq., F.R.G.S.)

(Read August 30th, 1886.)

In directing your attention to the country that lies to the west of the telegraph line, it will be remembered that it has been traversed at various times by several expeditions, their object being principally to reach the settlements of Western Australia, and to solve the problem as to whether the intervening country was adapted for settlement. It was first crossed by Colonel Warburton in 1873, in lat. 19° and 20° , and it has been traversed by the expeditions of Gosse, Forrest, and Giles, in lat. 25° , and still later in lat. 29° by the expedition equipped by Sir Thomas Elder, the command of which was entrusted to Mr. Ernest Giles. The testimony of all these travellers points to the fact that for the most part this enormous extent of country consists of sandy wastes, covered principally with spinifex and scrub of various kinds. So dense does the latter become towards the west that in many places it is almost impenetrable. The conviction is therefore forced upon us that for many years this country will remain undisturbed. It is a matter for regret, owing to the inhospitable character of the country, combined with its uninteresting sameness, that few inducements have been offered to the traveller to deviate from the direct course originally laid down. Amongst others there is one feature that has been passed by which I think our Society should endeavour to have placed upon our maps with some degree of accuracy, more especially as it lies within the boundaries of this province. I refer to Lake Amadeus. Of its configuration and extent, or its sources of supply, we know at present next to nothing.

The completion of the overland telegraph line in 1872, offered special advantages for penetrating the unknown interior to the westward, and in August of that year we find that a small party started with that view, its promoters and principal supporters being Baron Sir Ferd. von Mueller, K.C.M.G., and Mr. Ernest Giles. The former had accompanied Augustus Gregory in his adventurous travels of 1855-6, and his name is associated with every expedition that has left the settlement in the cause of Australian discovery. Owing to limited means, and but little anticipating the difficulties and obstacles that were afterwards encountered, this expedition, which was commanded by Ernest Giles, had but a spare equipment. After leaving the Krichauff ranges (discovered and named after

Mr. Krichauff), and Gill's ranges, Mount Olga, from the western extremity of the latter, loomed upon the distant horizon. On his course towards Mount Olga he came to the shore of the lake, to which he gave the name of the then King of Spain. He followed up the shore with the hope of either crossing over or travelling round it to reach Mount Olga, but the lake extended in a north-west direction to the horizon. To cross was impossible, and having but a spare equipment he returned to his depot at Gill's range. Mr. Gosse in the following year, taking a more southerly course for Ayers Rock, found a crossing near its easterly extremity, so that these expeditions have but made known little beyond the fact that the lake is there. Upon our present maps we see a leg-of-mutton-shaped figure bounded by dotted lines, but the real extent of this interesting feature is unknown to us. It may be still larger than it is represented, or it may be much smaller. All we know is that at Gosse's Crossing and at Giles' furthest it extends as far as the eye can reach.

The second visit of Mr. Giles to this interesting feature was in June, 1874, and under still more unfavorable circumstances for observation than the previous one, as we had been compelled through disaster to abandon the hope of reaching the settlements on the west coast. We had been fully twelve months in the field, and were consequently making the best of our way back to the telegraph line by Kamran's well and Gill's range. We were glad to find water in this little well, which is about five feet deep, but at the time of our visit it was filled up with rubbish. I think you will agree with me that the extensive basin which Lake Amadeus presents cannot exist without one or more channels of supply. No watercourse leaves the MacDonnell ranges flowing in this direction; certainly none approach from the south-east, several large and important watercourses leave the Petermann range, and from the summit of several points of this range these creeks with their splendid fringe of gum timber have been observed forcing their way through the scrubs in a northerly direction, and upon our maps they are represented as flowing into Lake Amadeus, but it is by no means certain that they reach so far; it is quite certain that no watercourse leaves the Rawlinson range that would find its way into the lake. Where then may we look for its channel of supply? An incident occurred while on the Rawlinson range that leads me to believe that in a north-westerly direction from there we may probably expect to find a country of considerable elevation that would probably throw out a watercourse like the river Finke which would flow into the lake. Upon several occasions in the early morning we ascended the highest point of the western extremity of the Rawlinson range, and far away to the north-west the dim shadow of a distant range of hills was observed; with the increasing heat and consequently altered conditions of the atmosphere it disappeared, but it was

always to be seen in the early morning. Much as we could have wished to visit the distant feature it was far beyond our reach, for the party was at that time in some distress. We lost one of our men (under circumstances that many may still remember), and most of our horses had succumbed to the privations of that journey, our remaining strength and energy were therefore required to enable us to reach the overland telegraph line. I was then and am still of the opinion that it is in that direction we may look for the channel of supply to the lake. Many will say, what can be more dreary, unprofitable, and uninteresting than a salt lake? But the voice of inquiry will not remain unheeded, or discovery lose its charm so long as there remains a spot untrodden, or knowledge to be gained.

Within view of this lake are two of the most remarkable natural features in Australia. I refer to Mount Olga and Ayers Rock; but it is a subject that baffles any power of description. We have a good idea of the outline of Ayers Rock in the engraving contained in volume I., recently issued by this society, copied from a drawing by Mr. E. S. Berry, of the Lands Titles Office, formerly second in command of Gosse's expedition. Mr. Gosse, accompanied, I think, by an Afghan, was successful in reaching the summit, and very creepy his experiences must have been, I imagine, for in the event of taking a false step on its slippery surface there is not a crevice or a crack to hold on by. Every part of its surface is rounded, and as it were almost polished. He determines the height to be 1,100ft., and in attempting to realise in our minds the appearance of so enormous a boulder (for it may be said to be one unbroken piece of stone) let us imagine a wall of granite as upright and as smooth as a wall of this room, and seven times higher than the post office tower. This granite wall, with its several indents or bays, is half a mile long, I dare say, and right at the foot, or foundations as it were, and in the indents deep pools of beautifully clear cold water will be found, upon which the sun never shines, the granite walls rising quite perpendicularly on either side for over 1,000ft. Mount Olga is a few hundred feet higher than Ayers Rock, and covers a much larger area, and, I think, quite inaccessible for anything but a fly. The wall on its southern side is quite as perpendicular as that of this room, and towards the top it hangs over, but from the foundations of this monster there issues a stream of beautiful water that is as permanent as the hill itself. It runs for a few chains over a pavement of coarse puddingstone or conglomerate, and is then lost in the sand. I am not sure but that some future traveller, by trying the north or north-east side, may plant his foot upon its summit, but from the south it would require a rocket and line, and a man not much troubled with vertigo. Mr. Gosse placed a small cairn of stones upon the highest point that he reached, and he must have ascended at the same place as ourselves, from the western extremity. The

view from this point towards the south is extensive, the Musgrave, Mann, and Tomkinson ranges bounding the horizon, and looking westward the Petermann ranges may be observed; but at their eastern extremity they have no points of great elevation, so they would perhaps not be readily identified. From here the view to the north is completely shut out by a wall of granite. You are standing as it were upon a ledge or shelf of the mountain, and it is this wall that makes it impossible to reach its summit from the south; but by carefully choosing your position, and looking as far towards the north as circumstances will allow, another monolith will be observed. Speaking from memory, I should say about twenty miles distant, with scrub intervening. It has never been visited, and I have no doubt other smaller ones will be found in the vicinity. These remarkable features rear their giant forms abruptly from the level of the surrounding wastes. The sandhills roll up to their very base, as no doubt once did the waves of the ocean. They are surrounded on all sides by the most hopelessly barren sandhills, covered with spinifex and scrub. Only around their base will a few thousand acres of grass land be found, but the traveller in forcing his way through these regions of scrub is amply compensated by the grandeur of the object he strives to gain.

If the barometric observations taken with so much care by our associate, Mr. C. Winnecke, and which may have determined the levels of Lake Eyre—of which he gave us particulars in the interesting paper that was recently read at a meeting of this society, could be produced to Lake Amadeus, much interesting and valuable information would be gained; and I would remind you that this lake drains an extent of country probably as large as that drained by Lake Eyre, and we have seen what valuable work has been effected in that basin by the diamond drills of our Water Conservation Department. I would like to see a lightly-equipped party fitted out to determine the outline of Lake Amadeus, to follow in detail to their sources any channels of supply, to secure for us a collection of the rock formation of every separate range, more particularly those interesting sandstones of Gill's range and the granites of Mount Olga and Ayers Rock, and to take photographs from every point of view of these wonderful monoliths. Such an expedition would return to us loaded with much valuable information of a country which must have peculiar interest; and if, as I imagine, a channel of supply enters the lake at its north-west extremity we may hopefully look for a safe and easy overland route to the settlements on the north-west coast."

DISCUSSION ON THE PAPER.

In reply to a question, Mr. Tietkens gave a curious account of the origin of the name given to the Petermann ranges lying south of Lake Amadeus. When the aborigines were asked what was

their name for these hills they replied by a constant repetition of a word resembling "Petermann," the name of the well-known German geographer. This being considered a very appropriate title by the explorers who first visited the country, they gave the range its present appellation.

Mr. J. W. Jones, Conservator of Water, said the country southwards of Lake Amadeus down to the Nullabor Plains was of a sufficiently good character to carry stock, if not sheep, at no very distant date.

The Physical Geography of the South-West of Western Australia.

(BY HIS EXCELLENCY SIR WM. C. F. ROBINSON, G.C.M.G.)

(Read September 27th, 1886.)

The subject which I have chosen for your consideration is one which, at the present time, will probably commend itself to your attention, inasmuch as it relates to a neighboring colony which is beginning to attract a good deal of notice as a field for the employment of capital and labor, but which, though one of the oldest of the Australian settlements, is even now less known than it deserves to be.

The vast extent of the colony of Western Australia renders anything more than a partial treatment impossible, and, in selecting a portion of it for my remarks, I have necessarily been influenced by the intimate relations which exist between that portion and South Australia, inasmuch as Albany, the chief harbor of the country I am about to glance at, is, and must continue to be, the principal point for communication between the two colonies. You are probably aware that a railway is about to be built from Albany to Beverley (a distance of about 220 miles) on the land grant system, Beverley being already in communication, by means of the Eastern Districts' Railway, with Perth and Fremantle; and thus the whole of the district which is in my contemplation will be girt with the iron rail, and its settlement largely facilitated. On this account, if for no other reason, the time seems opportune to offer a few remarks with reference to a district which has too long remained dormant, but which promises in the future to take its place as one of the valuable and prosperous parts of Australia.

I must at the outset disclaim any pretension to original treatment of my subject. This paper will mainly consist of references to the researches of others, supplemented by such general information as I was able to acquire while administering the government of Western Australia.

In confining my observations to so small a portion of the colony, the fact must not be overlooked that, though small by comparison, being only one-sixtieth of the area of the whole of West Australia, it is more than half the size of Scotland, and should be able to carry a large proportionate population. It equals in area the entire British Possessions in the West Indies, and from climate and productions, indigenous and exotic, is as well adapted for the residence of Britons as any part of Australia. We may well believe therefore that the time is not far distant for its full occupation by men of our own race. "There is," says the

great poet of all humanity, "a tide in the affairs of man that taken
"at the flood leads on to fortune." This tide seems to be now
favorable to Western Australia, and her children appear to be taking
advantage of it, as from their character I can affirm that they are
fully capable of doing.

The time which I can claim for your attention would be found
too short for the consideration of this subject, if I were to go fully
into a detailed account of the physical features even of this small,
but, as I think, most favored section of our sister colony; but
fortunately its larger physical divisions are clear and well defined,
and therefore an account of them may be compressed within
reasonable limits. We may take three as the number of these
divisions. Firstly, we have on the east the line of elevated watershed
of the rivers of the west and south coasts, dividing the partially
occupied country from the great central plateau or basin, which,
with occasional tracts of available land, gradually passes into
what is commonly known as the great desert, a convenient name
for so large an area, which has only been traversed by explorers,
and which is intruded on, at present, only at the extreme western
border for pastoral purposes; secondly, the great forest land extend-
ing to within from ten to fifteen miles of the sea; and lastly, the coast
districts of the south and west. I exclude the extreme south-
western portion beyond the Lower Blackwood, as being, for
reasons which will appear in the sequel, extraneous because abnor-
mal. The first is the course chosen for the railroad from Albany
to Beverley, with its great southern outlet King George's Sound;
the second contains not only a vast expanse of the finest timber,
but in the upper and middle valleys of the rivers, agricultural and
horticultural areas still unoccupied, besides the mineral wealth of
the hills which awaits development; the third has been declared
by more than one competent authority to be the best suited in
Western Australia for settlement by Europeans of all its great
extent of surface, and of course is the outlet for the export of the
staple products of the whole district.

GEOLOGY.

A knowledge of the geology of any country is the best intro-
duction to that of its physical geography; indeed, in this case, as
I suppose in all others, it is the key to its intelligible apprehension.
The labors of the brothers Gregory, and of Mr. Brown, have
afforded sufficient information on this head, for our present, if not
for all purposes, and their reputation is sufficient to justify us in
accepting it at their hands without question. From them we learn
that in its main outlines the geology of this portion of Western
Australia is very simple. The great mass of the Darling ranges,
presenting throughout to the west a steep escarpment of from 500
to 800ft., furrowed by the narrow valleys and gorges by which the

drainage of its upper surface is transmitted to the ocean, is formed of crystalline rock, for the most part granitic, but with great variety in composition. The terraces in the middle and upper valleys of the rivers, and much of the surface of the hills, present horizontally deposited masses of ironstone, as it is commonly called, a concretion or aggregation from the denudation of former rock masses, which in many places, broken up and exposed to the action of air and water, takes the form of gravel. We shall see that this ironstone surface, which promises so little to the eye, is the necessary condition of the growth of the best timber. At the base of the range schistose rocks and slates are in some places largely developed, and between this and the sea appear limestones—containing, as I am informed, secondary fossils—which on the sea-coast are overlaid by a ventose formation, forming a line of sand dunes, often more than 100ft. in height. These sand blown rocks contain shells of the same character as those on the seabeach. What underlies the limestones does not appear to be accurately known. To this, which is sufficiently descriptive of the western portion, we must add that, on the south, the spurs from the ranges stretch toward the sea, forming bold rocky headlands, and that the secondary formation is more largely developed on the surface. That which separates the extreme west is the overflow of basalt, which presenting columnar masses at Bunbury and Black Point, is traceable on the Upper Capel river, and on the middle course of the Blackwood, and may therefore be considered as cutting off the south-western extremity, if it has not, according to the Rev. M. Nicolay, been the cause of its elevation.

THE WATERSHED.

The division which has the greatest present interest is the eastern, as including the line for the railway, now commencing, and the great harbor of King George's Sound at its southern terminus; by which railway Albany, as already said, will be connected with the so called eastern districts, which, from Beverley, are now connected with Perth and Fremantle, by rail, and may, before long, be connected with Bunbury *via* the valley of the Blackwood. This line is in fact on the watershed of the country, the Avon flowing north to Newcastle, then trending south-west by Guildford to Perth and Fremantle, where it joins the sea; the Hotham and the Williams uniting with the Murray, which has its outlet below Pinjarrah, some thirty-five miles to the south; while the Arthur and the Balgarup, with their affluents, the head waters of the Blackwood, have like them a south-westerly course, till trending suddenly in its lower valley at a right angle, the latter river has its embouchure in Flinders Bay, to the east of Cape Leuwin. Between the Blackwood and King George's Sound, the Warren and the Frankland descend from the southern gorges of the Darling range, while

the Kalgan and the Palinup reach the sea to the eastward of that harbor. From this it appears that the watershed proper is between the head waters of the Palinup and the Avon, there being a continuous slope from the north to Beverley, and from the south to Albany. The intermediate mass, so to speak, buttresses up the great central tableland or basin, as already described, and is continued to the north, forming the eastern limit of the Avon valley; while to the south it extends from the sources of the Palinup, in more than one distinct range, forming the southern limit of the same basin. In the line from Beverley to Albany there are therefore three well marked divisions, each with its respective physical characteristics. Beyond it, to the east, is a country with numerous salt lakes and sandstone ranges, with no exterior drainage. To the west and south the river valleys open from deep gorges in the Darling range, through which their waters pass over a nearly level plain to the sea.

It fell to me to have this line carefully surveyed by the present Surveyor-General, John Forrest (he requires no title to distinguish him), and his assistant, Mr. C. D. Price. It had been examined geologically some years before, by our own Colonial Geologist, Mr. Brown, and, of course, had been traversed by explorers, first by Captain Roe, and by settlers, and is indeed partially occupied, so that our knowledge of it is sufficient. Of the three divisions, the southern appears to be the least valuable for settlement, being comparatively barren, and passing to the east into the rugged spurs of the Stirling and Porongorup ranges, which dominate the country to the north-east of King George's Sound; but Forrest reports well of the central portion; while the northern differs little from the country about the lower course of the Avon before its confluence with the Swan, which, excepting Perth and Fremantle, and of course the newly-discovered goldfields, is the most populous portion of Western Australia. The direct distance from Beverley to Albany is about 220 miles, and the country rises from the south coast for nearly half that distance, culminating 1,251 ft. above the sea. The central portion, in which are the sources of the Arthur, Williams, and Hotham, falls from both ends to about 900 ft. above the sea, and is divided from the Avon valley at Chungamooning, where it attains to 1,277 ft. in elevation. The survey I directed to be made was for a railroad, and was to extend twenty miles on each side of the line selected, so that the country surveyed would contain more than five and a half million acres. In the southern portion Mr. Price only estimated some 30,000 acres as fit for agricultural purposes, but he had not taken into consideration a large area of land near Albany, which, as I am informed, only requires draining to be extremely fertile. In the central portion Forrest estimated at least 158,000 acres as good land, that quantity having been at that time taken up in fee-simple, or on special occupation leases, but not therefore necessarily all under cultivation, thus making

188,000 acres in all available for agriculture. There is a peculiarity in this district which is worth observing, because, as I think, it is unusual, the richer lands being on or about the watershed, while the river valleys present very little land fit for agriculture. This is to be accounted for by the fact that not only are the upper valleys of all the rivers narrow, but, having been formed among crystalline and ironstone rocks, the debris washed down by them is not commonly of a fertile nature. There are, however, many deposits, of too limited extent for agricultural purposes, that are well fitted for horticulture, and Forrest reports the central division to be suitable for the growth of the vine and other fruit trees; so that it is to be hoped and expected that an industry so suited to immigrants with small capital may be largely developed, when, by the railroad, a market is opened for its produce. There is but little difference in the average annual temperature throughout, which is at York 63° , and at Albany 59° , the extremes being less at Albany as on the seaboard; at Perth it is 65° . The country immediately surrounding Albany is indeed one of fruits and flowers; probably in no part of Australia is there a greater variety and luxuriance in the indigenous flora. One of these—the exquisite *Boronia megastigma*—well deserves to be cultivated, for the sake of its powerfully fragrant blossoms. The forest growth on the line of the watershed corresponds to the nature of the soil, and consists of stunted White Gum, Sheaoak, Jam, and Mallee, but the richer flats are indicated by York Gum, as the watercourses, pools, and lakes on the east are by the Casuarina. In the central portion the prevailing timber is the White Gum. Sandalwood has been abundant, and may be again if the young trees are protected. It is still abundant to the east. I shall have occasion to speak more fully of some of these trees when describing the forests. Both surveyors report a sufficient supply of water as obtainable throughout the line.

The outlet of this district to the south has an interest not merely local, but Australian generally, shall I say federally as well as imperially? for the great harbor at King George's Sound is the only one of importance on the south-west coast of our island continent, and therefore commands our southern seas, and the commercial traffic upon them. This fine harbor is formed by masses of crystalline rock, culminating on the south in Mount Gardiner, 1,305ft. above the sea, which separates the Sound from Two People Bay. The same rocks extend to the east beyond, forming the coast line. The Sound is divided into outer roads and an inner basin, by two rocky islets, the basin being about six miles in diameter, and from this again access is gained, on the east and west, into two smaller land-locked basins, Princess Royal and Oyster Harbors. The first, as most of you know well, is the port of call for the mail steamers, and is separated from King George's Sound by Mount Clarence, a great granitic boss rising 596ft. above its waters, at the base of which,

on the west, is the town of Albany. It is covered to the south by a low limestone neck, the extremity of which, Point Possession, is only three cables length from the base of Mount Clarence. This harbor is about three miles in extent, but has deep water only for less than two from its mouth. Oyster Harbor is circular, and about two miles in diameter, for the most part shallow, but admitting vessels drawing 14ft. to near the mouth of the Kalgan river; a strip of sandy beach three miles long forms the limit of the Sound, and connects Oyster Harbor with the eastern base of Mount Clarence. Behind this beach is an extensive flat of moist land. The importance of King George's Sound can scarcely be overrated with respect to any of the interests concerned, whether local, Australian, or Imperial, and the best means for its protection has been consequently well considered. It is obvious that the formation of the outer harbor, as well as Princess Royal harbor, affords great facilities for defence, but the distances to be covered are great, and the cost of fortification and maintenance must be in proportion. It was this that, when local interests only were under consideration, led to the conclusion that its defence would be impracticable, as altogether too costly to attempt; and indeed it would be necessary, for its efficient protection, that the other interests involved should bear a large share in such expenditure. I am certainly not an alarmist, but the occupation of the Sound by an enemy, even for a short time, would have a fatal effect on our commerce, and the dislodgment would probably be as costly as provision for defence.

THE FORESTS.

It has been observed that the forests of the south-west part of Australia are its most important physical feature, and indeed form a large portion of the material wealth of the colony. Knowledge of their extent, and quality, and of the supply they would afford for commercial purposes, was first obtained by an inquiry which I caused to be made in 1880, when desiring to develop the trade in timber, for which the time seemed to be propitious. It was then ascertained that these forests covered an area of some 30,000 square miles, of which only a very small part extended beyond the limits we have at present under consideration. There are other forest lands in the colony, notably those of pine, or more properly cedar, on the north coast, which will probably supply the wants of the Kimberley district, and which are accessible for that purpose, but too distant from other parts of the colony to have been available hitherto for use. Others there are which have been for the same reason useless, except for local purposes, being too distant from any port, but most of which will be made accessible by the railroads now commencing, as those on the watershed between Albany and Beverley already noticed. The large area of

the forest lands, as then estimated, might I think have been justly increased, as useful timber extends eastward as far as Cape Riche; but for our purpose we may consider it as extending on that side from the upper valleys of the Palinup to the east of Oyster harbor, where saws driven by steam-power have been at work for many years.

We may confine our consideration of timber for exportation to the six principal kinds, all being eucalypts; but to these might be added several Acacias, Banksias, and other trees, all of which have their economical uses, not to speak of Sandalwood, now, as we have seen, most plentiful to the east of the limit of our inquiry, and of which 2,628 tons were exported in the year 1884. The first in importance of these eucalypts is that commonly known as the Jarrah or Yarra (*E. marginata*), which is gradually finding its way into the markets of the world—the first not only because it is on the whole the most useful of the Western Australia forest trees, but as covering the largest area, being the principal vegetable product over some 14,000 square miles. This tree attains to a large size, sufficient for all purposes of construction, is of handsome growth, straight and tall, but with the fault so common to the trees of Australia, it is not umbrageous. The white blossoms are, however, very beautiful, and produced in abundance, even when the tree is very young. The jarrah timber has been the subject of exaggerated praise, and depreciation, and in either case not without some reason, having been found in some places to answer fully the claims made for it of strength and durability, while in others it has failed. The reason for this is not far to seek; like other timber it requires to be cut from trees growing on the proper soil—the ironstone gravel of the Darling range—at the proper season, and the proper age, and moreover certain parts of it are of inferior quality; it is also difficult to season, being liable to split in the process if care is not taken. The great and sudden demand which, at one time, was made for this timber, induced, as I fear, its exportation to fulfil contracts as to quantity, without sufficient regard to quality; but, when the necessary care is taken, it will be found to justify the encomium of Baron von Mueller, whom we all know well as a competent authority, “that for the durability of its timber it is unsurpassed by any kind of tree in any portion of the globe,” and under such circumstances it has three properties of great utility—it resists the marine teredo and the white ant, and is not affected by the oxidation of iron bolts or nails. The next in importance is the White Gum (*E. redunca*), of which there are several varieties. It is the predominant growth on some 10,000 square miles, and, as we have seen, crosses the eastern limit of the watershed. This tree, although it does not often exceed 100ft. in height, has been known to attain to a diameter of 17ft. The wood is hard, and for some works, very durable and valuable, especially for the uses of the wheelwright and machinists; it is remarkable as

growing on inferior land, and especially in moist situations. The tree occupying the next largest area is the York gum (*Eucalyptus loxophleba*), so called from having been first found in quantity near York, on the Avon. It is the principal forest product over some 2,400 square miles; its wood is remarkable for its toughness. Next in point of area of occupation, but first in size, and, as will, I think, be ultimately proved, not second in utility, comes the giant of these forests, the Karri tree, which prevails over 2,300 square miles of the south-western coast of Western Australia. The maximum height attained by this noble specimen of Australian trees is not less than 400ft., some 300 of which are without a branch, and its diameter has been measured to 20ft. Hitherto the timber of this tree has not been much known, even in West Australia, on account of its size, and the consequent difficulty of felling, and reducing it to marketable and transportable dimensions; but there is little doubt that, by means of the works established at Augusta, near the mouth of the Blackwood, it will soon be better known. Its durability has been sufficiently established by accidental circumstances; it is more elastic, and quite as hard as the wood of the jarrah. Next in order is the Red Gum, for beauty of form and umbrageous foliage the pride of West Australian forest trees, predominating over an area of only some 600 square miles, but not unfrequent elsewhere. The tree is lofty among eucalypts, and has not uncommonly a diameter of 10ft. at the base; its wood has been considered equal to jarrah, and its gum as a specific against dysentery. The Tuart (*Eucalyptus gomphoccephala*), occupies the comparatively small area of 500 square miles in this district. It grows to a considerable size, often 6ft. in diameter, and very rapidly, on the sandy and limestone hills of the southern and western coasts, where, unfortunately, it has been in many places destroyed, being that most ready to hand for domestic use among the early settlers, its remains testifying that what is now a treeless waste was once a verdant forest; and it is to the growth of this tree that we are said to owe the remarkable hollows in the coast limestone, familiarly known as pipes. The stone being in process of gradual and continual formation from blown sand, the rain, admitted into the soil by the rootlets, decomposes the lime, and thus permits their enlargement, and pipes thus formed, left hollow by the decay of the roots, may be commonly seen of 1ft. to 2ft. or more in diameter. The roof of a cave at Rocky Bay, near the mouth of the Swan, formed artificially, is supported by a pillar of the indurated lime which has surrounded one of these roots, and which, to the casual observer, appears to be a large stalactite. The wood of this tree is solid, and does not rend, and is used in shipbuilding. These are the principal timber trees, but these forests produce others of value for purposes of utility or beauty; for the latter, the *Eucalyptus ficifolia*, with its gorgeous crimson blossoms, is pre-eminent. Obviously the vast forests of the

south-west of Australia form one of its most important physical features, as they are and must continue, at least for many years, a primary source of wealth; but unless their conservancy go *pari passu* with their utilisation, it is to be feared that, like those of north-east America, they may ultimately disappear altogether, unless like those of Southern India they are restored by science, art, and labor. One is an example of entire denudation from neglect, but the latter of restoration by timely care. It is not so many years since the dockyard at Bombay was supplied with teak from Moulmein. Now, under the scientific supervision of foresters, the neighboring hill-country produces an abundance, both for use and exportation. The number of timber works in south-west Australia is increasing; the export of timber was in 1884, 17,234 tons.

The forest growth in that district is, as elsewhere, the cause of atmospheric action and reaction, producing a greater rainfall and a greater conservation of water, by preventing evaporation from the surface of the ground. The average rainfall throughout the district approaches thirty inches; in other parts of the colony it descends to one-half that quantity. There is this to be observed, however, that the valleys opening to the north, as the Avon, or to the west, as those of the coast from the Swan southward, being more exposed to the action of the sun, the surface evaporation is more rapid, and the waters therefore less permanent than in the south.

We cannot quit this portion of our subject without grateful remembrance of the labors of von Mueller, whose work on this subject is most interesting and exhaustive.

THE COAST DISTRICTS.

I need not detain you long with the description of the coast districts, omitting the portion to the west of the Blackwood, which, as I have said, is extraneous, and possesses its own peculiar interests, which, so far as is known, are rather scientific than economical; unless indeed the great overflow of basalt which characterises it should be found to cover deposits of the precious metals, as has been not unfrequent in other parts of Australia, and it should become a mining district with deep leads, in which case its proximity to the sea, and to the timber forests, may give it prominence among the more productive districts of Western Australia.

We have seen that the coast districts of the south and west are in some respects similar, while yet they have characteristic differences. I may say a few words on both. In the floras, the contrast is marked; the White Gum and Peppermint, so named from the scent of its leaves, were, and in less proportion are still, the principal trees of the west coast, until it approaches the district of

the Karri, which stretches across to the south coast, and is then continuous eastwards; but the special habitat of the Karri is on the lower Blackwood and Warren, though gigantic specimens have been found as far east as on the Frankland. We have already noticed the effects produced on the coast limestones by the White Gum, but a word must be said for the graceful Peppermint, with its drooping branches and long train of white blossoms, and more especially its verdant foliage, which no doubt was what proved so grateful to the eyes of the first British explorers of this coast, comparing it, as they would do, with the russet green of the trees of New South Wales. There are few trees which grace the garden more than this beautiful tree. Besides these, a characteristic feature of the flora of the west coast is the Black Boy (*Xanthorrhæa*), common indeed throughout the country, but persistent in retaining its ground when others have been destroyed. Some day it may prove of economical utility. To this we may add the *Zamia*, which is found over the rough surface of the limestone, where worked into ridges and hollows by the action of the rain, and hardened as well as altered by the same influence, like the pipes I have already noticed. The flora of the south coast has not only these, but additional characteristics peculiar to itself. There we find dense and almost impenetrable masses of what might be termed in England copse wood, with varieties of eucalypts and other trees not known in other parts of the colony. The wealth of vegetation here is easily accounted for by the southern exposure, and the nearer approach of the crystalline rocky hills to the sea, and consequent abundance of fresh water. I have already remarked that this district, from the lower Blackwood eastward, has been esteemed by more than one competent judge, as better fitted for settlement by Europeans, especially on account of its climate, than any other part of Australia. It may be asked why then is it still unoccupied and so little known. The answer is simple. It is naturally cut off from the rest of the colony, and the early settlers having been extravagantly scattered over the country, Augusta was abandoned, and Albany languished until postal steamers required its harbor. Those whose flocks and herds have since fed over this district were not likely to publish its adaptability to other industries. The coast was formerly one of the principal stations for the whale and seal fisheries, the inlets in giving shelter to small craft, and the headlands and islets offering secure anchorage to larger vessels, whose commanders are sufficiently acquainted with them. Herein also a difference appears between the south and west coast. These inlets are not all like the lagoons on the west formed by the sand dunes keeping back the drainage of the interior, which consequently stagnates at their inner bases. The difference of the outlines of these coasts, as shown on the map, is sufficient to indicate their difference in this respect. The south is emphatically the country for the man of small capital and great

industry, whether directed to agriculture, dairy farming, or horticulture. The fruits of our European gardens and greenhouses are produced there spontaneously, but receive little cultivation, because a market is wanting. The same might be said of dairy produce, but the railway constructors will prove there, as elsewhere, great consumers, and neither the produce of gardens or dairy will soon want a market. If I term this district the garden of West Australia, I think I shall not be contradicted by those who know it. Of the native inhabitants, or of the *fauna*, I need say but little. The aboriginal "humans," as our American cousins might term them, find the northern and warmer parts of the colony more suited to their constitution and habits. Some are still found about the settlements, and their labor is utilised; some few still range the forests, where they can follow the same life their fathers did before them. The forms of animal life which are most abundant are the birds and the fish. The waterfowl especially swarm on the inlets and lagoons, as well as on the small freshwater lakes, which are common in both districts of the coast, as well as not infrequent in the interior, and which generally afford a belt of rich soil available for culture.

CONCLUSION.

Thus far I have spoken almost exclusively of the natural features of the country. A few words before I close as to the condition of its towns and settlements may have some interest for you.

Perth and Fremantle (at the northernmost point on the western seaboard of the country which I have been describing) are the two principal towns of the colony. Perth, as you know, is the capital, and is situated about ten miles from Fremantle, at the mouth of the River Swan. Perth is the Adelaide of Western Australia, and Fremantle the Glenelg and Port Adelaide combined. "With the exception of Sydney," I quote from a former lecture of mine, "I have seen nothing in Australia to equal the situation of Perth. The town contains about 7,000 inhabitants, and has several excellent public buildings. Government House and the Town Hall, both erected by convict labor, are commodious and handsome, and when built, some eighteen years ago, were considered in advance of the times. For its population, the city covers an unusually large area of ground, and, with the exception of one or two central streets, has still the appearance of being all suburb. As the population increases the vacant spaces will be built upon, and I quite believe that, what with its beautiful site and splendid climate, Perth will ere long become one of the most agreeable places of residence in Australia. The projected railway to Albany may possibly draw population towards the south, but Perth will always be the political capital of the southern part of the colony, as distinguished from its tropical portions,

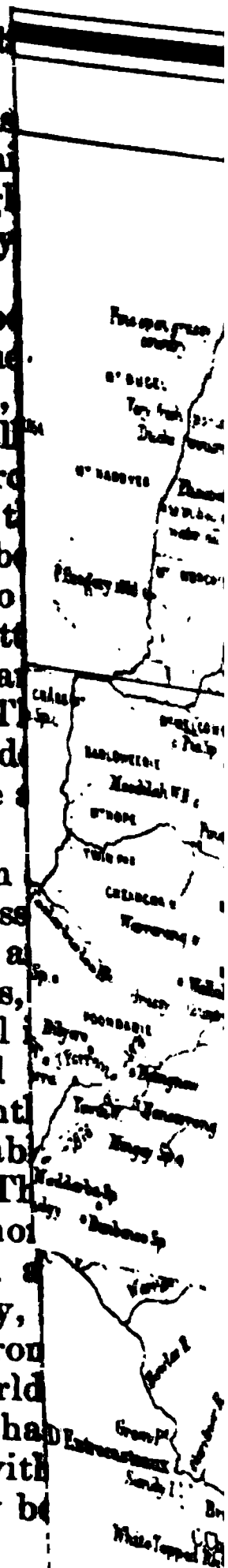
"and Fremantle, the shipping port of Perth and the central districts, will probably hold its own also."

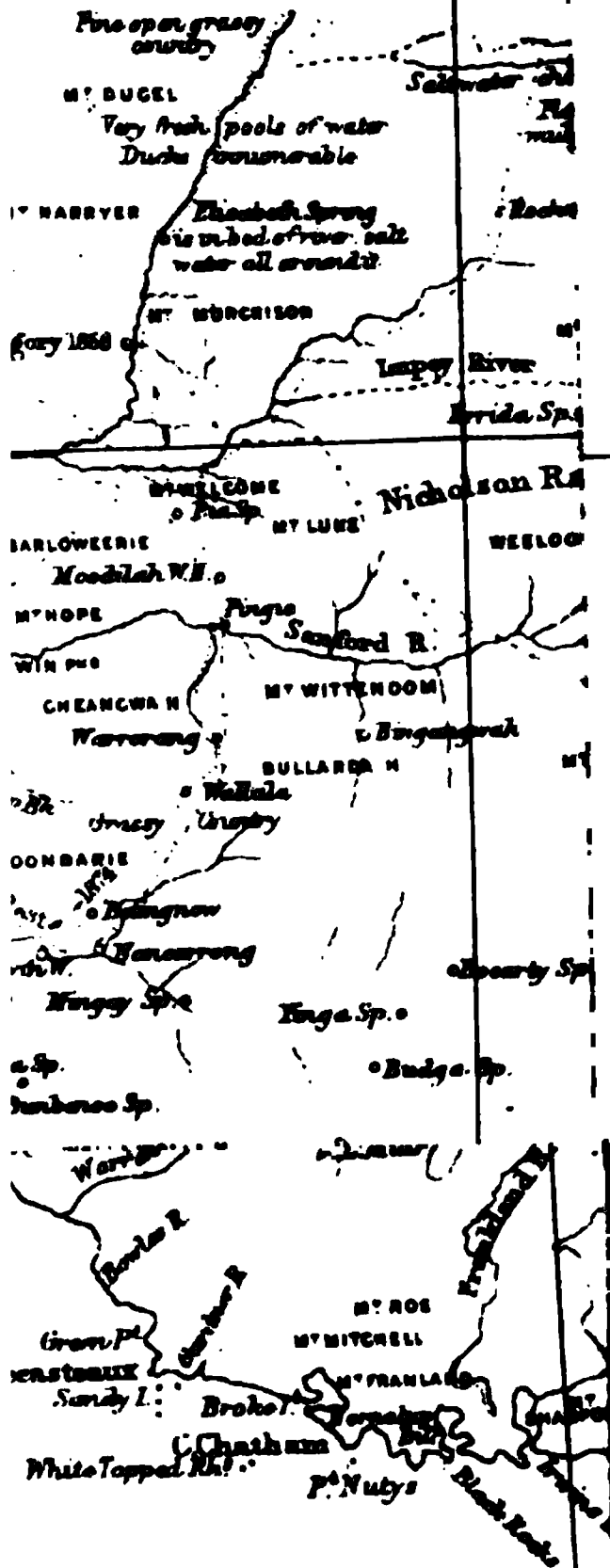
The value of land in and about Perth and Fremantle has risen rapidly within the last few years. Indeed, I believe that a mild form of syndicate fever has made its appearance there; though I do not think that the complaint has yet assumed so virulent a type as in some other places that we have heard of.

Descending the coast from Fremantle, the next town of importance is Bunbury, ninety miles from the Swan, and picturesque, situated on the west side of the entrance to Leschenault inlet, which debouch the Preston and Collie rivers, with several small streams. The harbor is a tolerably safe one, being sheltered from all but the north-west winds. Bunbury is the capital of the district of Wellington, and a port for the shipment of timber, sandalwood, horses, and general produce. It is the outlet to a considerable tract of productive country, and possesses a fine jetty built of jarrah timber, which affords facilities for the loading and discharge of vessels. The coastal steamers call at this port. The town is under municipal government, is already well provided with churches and schools, and will in course of time become an important place.

Thirty miles south of Bunbury we reach the pretty little town of Busselton, the capital of the agricultural district of the Vasse. The works of what is known as the Ballarat Timber Company are situated at Lockville, five miles from Busselton, where sawmills, jetty, and other buildings have been erected. Cereals do well in this neighborhood. Couch grass thrives remarkably well, and it is not too much to say that the bulk of the sandy, and apparently inferior, country along the coast could be converted into valuable paddocks, capable of carrying large quantities of stock. The climate of the Vasse is superb. The hot winds seem to stop short of this district, consequently the heat is seldom excessive, and the cold is never so severe as in Tasmania, for instance, it may, I think, be said, without fear of contradiction, that the country from the Vasse to Albany enjoys one of the finest climates in the world. It is a land of flowing rivers, magnificent timber, and scenes that are grateful to the eye, and the traveller there is impressed with the conviction that what is now primeval forest will one day be the home of a large and prosperous population.

Fifty miles south from Busselton is Augusta, a very useful port at the mouth of the Blackwood river, in the neighborhood of which, one of your enterprising and respected citizens, Mr. M. C. Davies, has established extensive timber works. From this the coast trends eastward, and passing the mouths of the Warren and Frankland rivers, Albany is reached, at a distance of about 180 miles from Augusta, and 360 from Fremantle. From Albany (of which I have already spoken) to Perth by road is 261 miles, and the country traversed by it is practically identical with that which







I have described to you when speaking of the route selected for the railway, with the exception that the road bends to the westward after passing the Williams, the railway line continuing north to Beverley, which is at present the south-eastern terminus of the railway. Of the journey by road from Albany to Perth but little need be said. In the first place it will, ere long, be a thing of the past, and secondly, it really differs but little from country travelling in other parts of Australia. The country inns at Kojonup (100 miles north of Albany), the Williams, and other points along the road are neither better nor worse than those in other similar places, while the road itself is by no means a bad one, considering the sparsely peopled country through which it passes. There are worse things in life than a three or four days' drive from Albany to Perth, for what with the exhilarating atmosphere, the park-like beauty of the scene in places, the wealth of bush flowers, with now and then a touch of the mysterious silence of a great Australian forest—to say nothing of an occasional shot at a kangaroo or a bustard—I have found the time pass pleasantly enough while travelling on that much-abused, but, as I think, unjustly maligned highway.

In conclusion, I might express my fear of having wearied you with details, and yet I have omitted many not without interest; but I have been addressing those who, acknowledging that science is based on accumulated facts, may not have been unwilling to accept those which I have presented, and which I believe to be fully authenticated, respecting so important a portion of our sister colony of Western Australia. It has seemed to some that the interests of the Australian Colonies might be separated. It appears to me that all their interests must be mutual. The knowledge of each is, therefore, in my estimation necessary to all, the prosperity of one advancing also that of others. In this view the facts I have offered for your consideration should have almost as much interest here as in Western Australia.

As regards myself personally, I may say that everything connected with Western Australia will always be invested with peculiar interest, for some of the most arduous and responsible, and consequently happiest, years of my official life were spent there; and when I left the colony at the end of my second administration I had the gratification of knowing that feelings of friendship and regard had been established between the people and myself, which at all events on my side neither time nor distance can obliterate.

The Rivers of the Northern Territory of South Australia.

BY CAPTAIN CARRINGTON (late commander ss. *Palmerston*).

(Read November 1st, 1886.)

The importance of rivers for the development of new or comparatively unknown countries, and their economic value as commercial highways, renders any addition to our knowledge of them, however slight, worth recording.

That part of this continent known as the Northern Territory of South Australia is very rich in rivers, some of them being navigable for very large ships for considerable distances, and all of them navigable with suitable craft. Our knowledge of these rivers is, however, very imperfect, and anything like a detailed survey of them has only been carried out in a few instances. For the purpose of making a nautical examination of these rivers, the steamer *Palmerston* was purchased by the Government of South Australia, and early in the year 1884 was dispatched to discover the whereabouts of the mouth of the Macarthur river.

The intentions of the then Government were to have a detailed survey made of this and other unsurveyed rivers. The advent of other Governments, however, greatly restricted the operations of the vessel, and the present Government recalled and sold the ship.

The writer of this paper had the honor to be appointed to the command of the *Palmerston*, and the following account of our proceedings may be of interest. I should, however, add that the country through which the Macarthur flows is held on pastoral lease by Messrs. Amos Brothers & Broad, of Sydney, they having a tract of country nearly as large as Tasmania. These enterprising gentlemen, having expended large sums in exploring and stocking this country, requested the Government to allow the steamer to take a quantity of station stores for them. Their request was granted, and while in Sydney the vessel took in some thirty tons of general stores and three horses, two being valuable stallions. Mr. Ernest Favenc was sent by this firm in charge of the horses and stores.

It was a great satisfaction to me to have the advice of Mr. Favenc, because the finding of any large river would not necessarily mean the one we were in search of, and his early identification of the Macarthur river saved me a great deal of work.

We left Sydney on Thursday, April 3rd, 1884, and after a fine passage arrived at Cooktown on April 10th. Fresh supplies were procured, and we sailed the next day.*

On the evening of the 14th, darkness compelled us to anchor near Red Wallis islands, in Endeavour strait. A boat sent on shore about 9 p.m. was fortunate in securing a couple of turtle.

Early on the morning of the 15th April we cleared the straits, and shaped a course for the Sir Edward Pellew group.

At daylight on the 17th we made the islands, Cape Pellew bearing S.W., distant (5) five miles. At 8 a.m. we anchored in Cabbagetree cove, being probably the first vessel visiting there since its discovery by Captain Flinders, in 1802.

Seeing some tall palms on shore, I sent a boat to procure a few, in case we should require station poles. At noon we weighed and proceeded very slowly to the southward, past Centre island, the soundings generally agreeing with those of the chart of Flinders.

At 4 p.m. we anchored in 3 fathoms, soft mud, the S.E. point of Centre island bearing N.E. by N., three miles and a half distant. By a fortunate accident, this position subsequently proved to be something under two miles from the outer bar of the river that we were in search of, but of whose whereabouts we had not then the remotest idea. From the anchorage the nearest part of the coast was nearly three miles distant, was everywhere low, fringed with mangroves, and destitute of any prominent marks. We selected this part of the coast to begin our search, because Captain Flinders had not, apparently, examined it so closely as the coastline on either side of the Sir Edward Pellew group.

The following day the steamlaunch was got ready, and I proceeded to examine an opening lying some five miles from the ship in a S.S.W. direction. This proved to be only a small creek with its mouth blocked up with sand and stones. The launch, although drawing only 2ft. 6in., grounded several times quite a mile from shore.

At about a mile west of this creek there is a low stony point comparatively clear of mangroves. This is the eastern point of a bay, which is about two (2) miles wide, and two and a half (2½) miles deep. It is almost wholly filled with mudbanks, and is nearly dry at low water. All the coast being fronted by extensive mudflats to a distance of two (2) and three (3) miles, a close examination was not possible with the launch.

The following day, April 19th, we left the ship in the whaleboat for the purpose of examining the coast lying west of the shallow bay examined yesterday. After passing several unimportant openings, which were left for future examination, we came to one of considerable size; this we sailed up for a distance of about twelve miles, when darkness coming on we decided to camp for

*See Parliamentary Paper 53A of 1884, pp. 9-11.

the night. The mosquitoes and sandflies were, however, so exceedingly troublesome that sleep or even rest was out of the question; we therefore got under weigh and proceeded towards the ship, where we arrived at eight next morning.

The opening had so far promised well. The least water we had obtained was ten feet; we therefore decided to try and get in with the launch. This, after a little trouble and a few groundings, was accomplished. After we had ascended to a distance of some thirty miles, Mr. E. Favenç, who accompanied us, recognised it as the Macarthur river. Its discovery had been very easy. We were, however, greatly disappointed, as it seemed at this stage hopeless to attempt to get the *Palmerston* into it.

Two or three days were spent in tracing the channel to seaward and buoying it off in a temporary manner. The tides were found to be very uncertain both as to time and the rise and fall. Our great difficulty, however, lay in the fact that the ship was drawing some 4in. or 5in. more than could be found on the bar at high water. The ship's draught was 11ft. 3in.; the greatest depth on the bar was barely 11ft., the bottom being composed of soft mud: however, I had strong hopes of getting over.

On April 25th I expected a good tide, and the second officer was sent to the bar in a boat, with instructions to hoist a given signal when he found 11ft. At 3 p.m. the signal was made, and we steered for the bar under a full head of steam, but the vessel refused to answer the helm, and we grounded. We got afloat again on the night's tide, and anchored about a mile from the bar, this being the nearest we could lie to be always afloat. The following day the highest water was only 9ft.

Subsequent investigation proved the existence of another channel much broader than the one I had attempted. After two days investigation of this new channel, and several soundings taken at both bars simultaneously, I found that the smaller channel had the advantage of at least one foot more water than the larger one. On April 30th we were successful in crossing the outer bar of the smaller, or eastern channel; but after proceeding about a mile a turn in it brought the sun right in our track, and I was unable to see the buoys that I had laid down for our guidance, and the ship grounded on the bank within half her length of the junction of this smaller channel with the larger one, which, at this part, carries as much as 18ft. at low water. This was very unfortunate, as we had grounded at extreme high water, and would of course require an extra high tide to get afloat again. We laid aground here for twelve days; heavy anchors were laid out almost daily, and these backed up by the stream anchors and kedges, but when a heavy strain was put on the ropes the anchors came home.

We also constructed a raft of 400 gallon tanks, securely braced together with planks and chain lashings. This raft, with the ship's boats, carried about twelve tons, and for the further pur-

pose of lightening the ship, the main boiler was blown down. This, with the boats and cargo on the raft, represented some thirty tons in weight, and on May 12th we were afloat once more. The following day we ascended the river as far as it was possible for a vessel of our draught. At the point shown on the plan the cargo and horses were landed the following day.

While the vessel was lying aground I was out with the launch daily, exploring the river and sounding its entrance. The greater and most important part of the accompanying plan was produced at that time. The people from the station of Messrs. Amos Bros. arrived to take charge of the cargo and horses on Sunday, May 18th. and on the following morning, at daylight, we started to descend the river, but after proceeding some two and a half miles, the vessel grounded, and remained fast until the 22nd instant.

Up to this time we had been very busy, had seen no natives, and only in one or two places had met with their tracks. The natives had, however, seen us; and our large steamer and small steam-launch must have occasioned them no little surprise. The object of our visit would no doubt be a source of considerable anxiety to them, and they would also be curious to know what kind of people navigated such strange craft. This evening, while lying aground, the station manager came down and informed me that, while they were away from their stores engaged in swimming the imported horses over a creek some two miles up the river, the blacks had plundered their camp. As the tide would not probably float the ship until the following afternoon, I left with him to investigate the affair, and, if possible, trace the natives with the stolen goods. We, however, found that little or nothing had really been taken away. They had, seemingly, not had time, for a deal of property, consisting of iron buckets, shovels, wire, and blankets, were found concealed in a neighboring mangrove thicket. They had evidently been watching our proceedings from the other side of the river, concealed from observation in the dense mangroves that there front the stream, and, as soon as the station people had left the stores unprotected, had swam the river, and stowed what they could away, to be removed when convenient. The quick return of the party, however, frustrated their intentions. We afterwards examined their tracks on the opposite side of the river, when we found that they had formed a recent track behind the mangroves to a point immediately opposite the place of discharge, and there were unmistakable evidence of their having sat there and watched our proceedings.

On May 22nd we were once more afloat, and steamed down the river, and crossed the bar without further mishap.

The principal mouth of the Macarthur river is situate S.W. by W. $\frac{1}{4}$ W., eight and a half miles distant from the south-east point of Centre island, its approximate position being latitude $15^{\circ} 49' S.$,

longitude $136^{\circ} 50'$ E. From the entrance the river was traced in a general south-west direction for an estimated distance of fifty miles. At this point the river is fordable—is, in fact, the place where overlanders cross their stock. Last year the township of Boroloola was laid out some three miles below the crossing. The accompanying plan shows the position of the township. The sketching of the western mouths and a great part of the river proper was done by Mr. J. P. Hingston, Government surveyor; the eastern mouth, bars, and soundings by myself.

It will be seen that the river is only navigable for vessels of light draught. This, however, is not of so very much importance, since there are excellent harbors at its mouth, the outer bar of which I considered to be the best channel is approximately S.W., distant five miles from the south-east point of Centre island. The bar has 6ft. to 7ft. at low water, and the channel carries from 7ft. to 16ft to its junction with the main stream, which carries from 12ft. to 30ft. up to and inside the river proper. The entrance to the Macarthur will never be safely navigable until properly beaconed off, and, in view of the large trade that will in the near future be done at this port, it should be no longer delayed. The many covered dangers that exist in the river should also be marked, or the channels through them indicated by leading marks on shore. The best kind would be good hardwood beacons. They would stand for years. Buoys cannot be recommended on account of their expense in keeping up, and their liability to destruction by the natives. We found that they came out in the night while the ship was there, and knocked off the hoops for the sake of the iron.

While on this voyage we also examined some seventy miles of coastline without, however, discovering any rivers that equal the Macarthur. Our examination commenced at an opening shown on the chart of Flinders, situate seven miles south-east of Sandy head. This opening led into a river locally known as the Robinson. The bar has not more than 4ft. on it at low water. Immediately inside the entrance are two islands, thus dividing the stream into three channels. These unite at about one and a half miles higher up, where the river is some 300 yards wide, with a depth of 20ft. to 30ft. in midstream. We only examined this river for a distance of three or four miles. The country close to its mouth is thickly timbered with very large trees, and well grassed, and forms a marked contrast to the coast country in the vicinity of the Macarthur.

The Sir Edward Pellew group of islands were not closely examined. We, however, landed on the largest ones. They are very hilly, appear to be composed of hard sandstone boulders, and the hills and slopes nearly destitute of vegetation. Some of the gullies have good dark soil, large trees, and rank grass.

West island is much better wooded; has here and there open

park-like slopes with permanent water. I found natives living there at the end of the dry season.

The space between South-west and West islands is an excellent harbor, with good holding ground and sheltered from all winds. There does not appear to be a navigable channel between the West island and the main land, or between it and the craggy islands lying east from it.

The coast was examined closely for a distance of nearly thirty miles to the westward of West island without finding any openings of importance. It was everywhere fronted with mangroves, but considerably higher than that portion that forms the Macarthur delta. Our examination ended at a point where an elevation is marked as an island on the chart of Flinders; it is, however, connected with the main, and is the western head of a small creek, the mouth of which dries at low water.

In a cave in this sandstone hill were found the bones of a number of natives, and, wrapped up very carefully in several layers of paper bark, were a couple of very curious weapons. They appear to be a boomerang and battleaxe combined, and are now in the possession of F. J. Sanderson, Esq. I have not met with weapons like them anywhere else in the Territory, and several friends who have seen them, and who are well acquainted with the natives of Australia generally, have informed me that they have not met with the same kind of weapon elsewhere.

While examining the coast in the vicinity of West island, I left the ship in the whaleboat under sail before daylight with the intention of exploring a creek that has since been found to be the western mouth of the Macarthur river. After getting close in-shore daybreak revealed a canoe, with four natives in it. We were between them and the shore, and although they tried very hard to escape us, we soon overhauled them. They were quite nude, and very much frightened, and had evidently gone out to have a look at the very strange craft that had anchored in their waters the night previous. We gave them some biscuit, tobacco, and pipes. They were totally unacquainted with the use of either of these things; they, however, took very kindly to the ship biscuit. The tobacco, although they had subsequently several trials at smoking, they did not appear to relish. Their canoe was made of bark, and I was much struck with its beauty as a shapely seaboat. The science of the shipwrights have not yet produced a vessel of finer lines and proportions than this frail 12-ft. canoe.

The only weapons they had were some rough waddies and a few fish spears. They subsequently visited the steamer, and were clothed and fed. One old man, who appeared to have some authority, was greatly pleased with a tall hat. He was taken down to the engine-room, and the machinery was started for his special benefit. As the steam hissed in the cylinders, and the large cranks began to revolve, a look of terror was visible in the old

man's features, and every muscle of his body quivered. He was greatly relieved when he again reached the deck, and no amount of persuasion could induce him to go down again. While he was on board the winches were at work hauling in some ropes. After watching the operation very intently for some time, he got hold of the rope, trying his hardest to hold it back. Of course the winch still brought in the rope and the old man with it, and he seemed somewhat disappointed; but after his experience in the engine-room he did not seem to wonder at it.

The natives were much astonished at everything they saw, and seemed very intelligent in making inquiries respecting the uses of many things they saw for the first time. Both sexes are well formed and apparently well fed, the greater number of the men especially being tall. We parted very good friends.

The practical value of the Macarthur river lies in the fact that it is the natural outlet for a tract considerably larger than the island of Tasmania, and extending inland as far as the telegraph line. The greater part of this large area has been represented to be equal to the best pastoral country of Queensland, and the table-land portion is capable of carrying some millions of sheep. Good harbors exist at its mouth, and the river is navigable, with suitable craft, for a distance of fifty miles.

It is now some eighteen months since the original plan of the Macarthur prepared by me was published. Up to date a township has been laid out, eight acres of which have been sold at an average of about £70 per acre; the balance, when put in the market, is certain to realise satisfactory prices: in addition, £2,500 have been received through the Customs. Now, upon the assumption that the dutiable goods pay an all round ten per cent. on entry, and that half, consisting as they do of general station stores, go in free, it will be seen that a trade has already been done of perhaps £50,000.

This in itself is no mean result, and since a good road has been discovered into the interior direct from the township of Boroloola, and a Customs officer and magistrate, with efficient police protection, is now nearly an accomplished fact, these figures should soon show a marked improvement. At our last visit, in November and December last year, three stores were erected, and a fourth about to be. All the business was done with Burketown, Normanton, or Thursday island.* An attempt has lately been made to establish a trade with Port Darwin by subsidising a small steamer. It appears—the steamer especially—to have been a disastrous failure.

The inevitable Chinaman had started a vegetable garden, and a very fair sized English cabbage could be purchased for threepence, with sweet potatoes and onions plentiful, and not so very dear. Those who are acquainted with bush life in the back blocks, and

* Trade route probably will be from Sydney, *via* Thursday island, which is only, say, thirty hours distant as against seventy or eighty hours to Port Darwin.

know what trouble scurvy is to the average overlander, will wish well to the gardener, although he is a Chinaman.

THE ROPER RIVER

Empties its waters into the extreme south-west part of the Gulf of Carpentaria. Its mouth is, to some extent, sheltered by Maria island, lying some fourteen miles east of it. The coast, in the vicinity of its mouth, is very low, fringed with mangrove, and fronted by extensive sand and mud flats, and without prominent marks, the only conspicuous land being Gulnare Bluff, some fourteen miles from the outer bar. The river is navigable for vessels drawing 10ft. to 12ft. for a distance of upwards of ninety miles.

There is a certain historic interest attached to the Roper. It is the best known and has been frequented more by Europeans than any stream on our northern coast. Stores and material were landed here for the construction of the northern portion of the overland telegraph line. The only chart of the Roper extant is a rough traverse, made probably prior to the visit of the storeships. To this has been added a detailed survey of the mouth, apparently of a later date. To this compilation I have made many additions and corrections. The chart, however, although of great use, is still very incomplete. The Roper, like the Macarthur, can never be safely navigated until the entrance is efficiently marked by beacons. In ascending the Roper for the first time with the *Palmerston*, we proceeded very slowly, the steamlaunch going ahead and sounding; the same was done in descending the river. This being safely accomplished, gave me a confidence in the stream that a subsequent visit somewhat rudely dispelled. It had been decided by the authorities that the steamer should earn some money, and we were dispatched with some sixty tons of stores to be landed as near Liechardt's bar as possible.

We proceeded in safety as far as the junction of the Roper and Hodgson rivers, the vessel going at the rate of nearly seven knots an hour, when we suddenly struck on a rock lying nearly in mid-stream, and having at the time about seven feet of water over it. The vessel struck heavily several times, with an uncomfortable grating and grinding sensation between as if the plates were being torn. This lasted but a few seconds, and the vessel, without stopping, got over into deep water again. It was soon found that the vessel was making water rapidly. We, however, steamed up to the spot where I had decided to land the cargo, ran the bow on to the right bank, put the cables round some very substantial trees, and kept the engines going full speed ahead, as it was necessary to keep the main pumps going. By this time there were some seven feet of water in the fore compartment, and the water was over the floorplates in the engine-room, and this notwithstanding the fact that our pumps were equal to discharging 400 gallons per minute. After securing the ship to the shore so as to

prevent her slipping into deep water in case of her filling, we got a sail under her bottom, and after shifting it a few times, eventually got it over the holes, and in two hours the vessel was again free of water.

Upon examination it was found that there were two holes knocked in her bottom, one in the fore compartment and the other under the boiler. These were plugged from the inside, a large pad of oakum, red lead, and canvas was then put over the plugs; blocks of hardwood, made to fit between the frames, were put over the pads and securely wedged down, the whole being covered with a thick layer of cement. These were put on by Mr. McGregor, the engineer, and we ran with them for nine months, until our arrival in Sydney for repairs.

The idea of the then Minister of Education of making a cargo boat of the *Palmerston* was not a happy one. On this particular trip we earned as freight £400, and it cost £315 to repair the damage. I thought, and think still, that we should have been much better employed carrying out the much-needed surveys.

While on this subject I may state that, while in Sydney, I was directed to proceed to Maryborough to pick up some sugar machinery, the freight on which amounted to some £80, and which took some trouble to get. This machinery shut out some 200 tons of coal that would have been worth £400 to us in Port Darwin.

The natives on the Roper, from several authorities, appear to be somewhat treacherous. My own experience, however, is directly contrary. On my second visit, an old man and several younger ones that I had met on my first visit swam off to the ship while under way. The old man, in answer to the usual question, "What name, you?" slapped his chest, and said, "Me 'Lowrie,' me savee Roper." Others of the party were named respectively after Lindsay and Cuthbertson, who were there in 1882. This changing of name is rather a curious custom. Lowrie had taken the name of the master of the *Young Australian*, and he had evidently kept it for a period of twelve or thirteen years. He appeared to be known by that name on the river, as natives up at Liechardt's bar told me they "saveed blackfellow 'Lowrie'." One of the natives that was very much taller than the others measured 6ft. 1½in. in height, with a chest measurement of 38½in. He had been severely handled by an alligator, and many scars, some of them several inches in length, were visible on his thighs.

Maria island may be reckoned as the Roper district. We have landed at times on different parts of it. At the west extreme of the island our attention was attracted by what looked in the distance like the remains of what had once been a slab hut. We found them to be the hollow trunks of trees, used as urns. They were placed upright and embedded in the soil, filled with bones of

natives. There were at least a dozen. They did not appear to contain a complete skeleton, but just the bones of the arms, legs, and skull. The spine, ribs, and bones of the hands and feet were missing. As, however, everything bore the stamp of age, it is possible they may have decayed. As Maria island is not continuously inhabited, these bones may have been brought from the mainland; or it may, perhaps, be a mode of sepulchre, now obsolete. Before leaving the Roper, I should state that the Hodgson and Wilton rivers flow into it. The latter is unnavigable, and filled with rocks at its junction. The Hodgson was examined for a distance of four miles. At about three miles from its junction with the Roper there is a rocky bar extending across the river, over which we with difficulty could find sufficient water for our launch. The river at our farthest runs through a rocky gorge, and the country on its banks much cut up by watercourses; grass and herbage abundant.

A township has been laid out at Liechardt's bar. It is not yet sold, but will in time become a prosperous place.

To give you some idea of the rainfall in the Territory, I may mention that on the eve of the 22nd December last I arrived at Liechardt's bar, and during the night the first rains of the season came on. It rained heavily for seven consecutive hours, and the river rose 8ft. during the night.

WALKER RIVER.

The Walker is the only river that empties into Bluemud bay. It was struck by Lindsay in 1883, when exploring Arnheim's Land. It is altogether an unimportant stream, and the head of navigation is probably not more than six miles from the coast as the crow flies. We ascended in the launch for a distance of nine miles, following the windings of the stream; and for a further distance of two miles in the boat; here a dry rocky ledge extends right across.

The Walker, up to our farthest, has a general westerly course, with an average breadth of 100 yards. From the report of Lindsay I had been led to expect a large river, as he gives its breadth as "400 yards." This is, however, so wide of the fact that I conclude that the word "yards" in that gentleman's report is a misprint for feet.

The river is navigable for vessels drawing not more than 6ft. Its mouth is situate approximately seventeen and three quarter miles W. $\frac{1}{4}$ S. from the south extreme of Woodah island, or latitude $13^{\circ} 34' 30''$ S. and longitude $135^{\circ} 53' 30''$ E.

While exploring Bluemud bay we managed, after considerable trouble, to communicate with the natives. Nearly all of them spoke the Macassar tongue, and from them we learned that they were expecting the Malays down soon on their annual visit for trepang fishing.

The natives were in possession of large Malay canoes. They were totally unacquainted with white men; they understood the use of tobacco, however, and I parted with a stick of tobacco in exchange for about twenty seed pearls and about a quarter of a pound was also given in exchange for a whole tortoise-shell, or rather turtle-shell, which is the tortoise-shell of commerce. The natives procure the shell and barter it to the Malays for tobacco and rice. With regard to the pearls, I could not learn from them what kind of shell they were obtained from, but from its latitude it should have all the conditions necessary to produce the pearl oyster proper.

The coast from Bluemud bay round to Castlereagh bay on the north coast has not been closely examined—its outline has in fact yet to be added to our charts. However, from the extent of country lying between the north coast and the eastern shores of Arnheim's Land, it is scarcely possible that any rivers of consequence can exist between there and the Goyder.

Before giving a description of the Goyder river, Castlereagh bay may be briefly described, and several inaccuracies in the present charts pointed out.

All that is generally known of this part of the Territory is comprised in a short paragraph, pages 79-80, vol. III. "Australian Directory." It runs as follows, and is in important particulars very erroneous:—"Castlereagh bay is thirty-seven miles across W. $\frac{1}{2}$ N. from its eastern point to Cape Stewart, and is fifteen miles deep. Hutchison and Goyder rivers flow into the south-eastern part of the bay, the first and easternmost having from three to seven fathoms in it and from thirteen to one and a half fathoms for fifteen miles in a S.W. by S. [an evident misprint for S.E. by S.] direction; and immediately to the south-eastward of Cape Stewart there is another opening to a river with mangrove banks, running in a southerly direction for about thirty miles. The shore is wooded to the beach, which was generally sandy, with rocky points. The interior country was not seen over the coast hills, which are very low and level."

These remarks are apparently founded partly upon the Admiralty chart 1044 and partly from the report of some previous explorer. The chart, however, in many points is wrong, and perhaps accounts for the many errors in the directory.

In the first place, there is no Hutchison river. This supposed river is, strictly speaking, another mouth to the Goyder; it is also the entrance to a strait some twenty miles in length, half this distance being navigable for large ships, and thus forming a splendid harbor, with an average breadth of half a mile. Its general direction is E.N.E. and it connects with Cadell straits, the opening shown on the charts some two miles south of the south extreme of Elcho island being its eastern entrance, and is completely blocked by many small islands, with narrow channels only

navigable for small boats. At a point some seven miles from its western entrance the strait borders good high country, well forested with gums and pines, and from this point the interior country may possibly be accessible.

It will be seen from the above, that as the supposed river is a strait, and the Goyder having another outlet, we have added two islands to the many that fringe the coast of Arnheim's Land. It is extremely probable that there are several others; for instance, Napier's peninsula is probably an island, and many others will likely be found to exist between Buckingham and Arnheim bays. Both these islands are elevated, and wooded to the beach. The soil and timber is similar to that on the mainland. The larger I have named Howard island and the smaller one Banyan island, from the fact that on its south-western extreme, which forms one side of the main entrance to the Goyder, there are two large banyan trees growing, the larger one of the two having a circumference of about 150 yards, and in the distance looks like a small wooded hill. This is, as far as I am aware, the only instance of the true banyan found growing in Australia.

There is also shown on the chart a river somewhat similar to the Goyder, running parallel to it, and throughout its length not more than two miles from it; no such river exists. The river lying "immediately to the south-eastward of Cape Stewart" is represented as a stream of some importance. Its mouth is some two miles wide, and it does not appear to be much less than half a mile wide, throughout a course of some thirty-five miles. Someone must have made a mistake. No such magnificent stream, nor anything at all approaching it, exists. Proof is at hand, if required. In 1883 Messrs. Lindsay and Cuthbertson crossed the course of this mythical stream not more than twelve miles from the coast. I need scarcely add that they did not meet with any such river. The truth is there are three unimportant creeks emptying into that part of Castlereagh bay lying between Glyde's inlet of Lindsay and a point some six or seven miles S.S.E. from Cape Stewart; the first and easternmost is identical with Darby's creek of Lindsay; the second, and this near the position of the supposed river, with the Yarunga creek (Lindsay); the third, a similar stream in all respects to the Yarunga, has, I believe, been pardonably mistaken by Mr. Lindsay for the Blyth river, as I have subsequently discovered that the Blyth, at some ten miles from its mouth, divides into two—the western branch I take to be the Cadell of Lindsay. The extent of coastline embraced by these three streams is about seventeen miles, and this part of the bay is filled with small mangrove islands and islets, numbering probably forty. These are divided by a network of narrow shoal-encumbered channels; some of them drying at low water are thus connected with the mainland, which is everywhere low, and fringed with mangroves, at the back of which are the ordinary saline plains, intersected by small creeks, and liable to

inundation. The reason of the existence of these numerous islands hereabout, and, perhaps, for the whole of the Crocodile group of islands and reefs, may be found in the fact that, somewhere in the vicinity, two tidal streams meet. The flood-stream to the east of Cape Stewart runs to the south-eastward, while to the eastward of the Crocodile islands it comes from the north-east, and at a point six miles W.N.W. from the Goyder entrance the flood sets strong to the west. As all these are running simultaneously, there can be little doubt that the high water at the South Crocodile islands, at least, is caused by the meeting of two streams. This would account for the coral formation and subsequent deposits, while the numerous channels through them may be traced to the action of the flood-waters from the three above-mentioned creeks.

GOYDER RIVER.

This stream also differs somewhat from that represented on the charts. The entrance and the first six miles of its course is correct enough in scale and outline. At this point the river divides into two, the river proper continuing a winding but general south-easterly direction for about seven miles. This part of the river gradually narrows from one-third of a mile at the junction to about one hundred yards, the depth varying from ten feet to five fathoms. The banks are everywhere lined with dense impenetrable mangroves, and a landing could not be found until we reached a pine forest, growing on what appears to be a spur from the tableland that here runs down on the right bank of the river. The head of navigation is at a point where two creeks run into the river from opposite banks, about half a mile below the pine forest, and thirteen miles from the entrance. The river is here filled with rocks, and at low water nearly dry. Boats can pass by keeping close to the left bank. From the pine forest the river was followed up for some seven or eight miles, the stream being narrow and tortuous, with a rocky bed; several rocky bars run across it at low water, forming falls, the first three being navigable for boats at high water. The country is nearly everywhere dense forest and jungle; travelling is very difficult; the country on the rises is stony, and the valleys are apparently subject to flood.

The river banks at our furthest were about thirty feet high, and on the highest bank met with driftwood was seen in the trees above our heads. Several excursions were made in different directions from the river, and many miles of difficult country travelled over without finding open country. The floodbanks are in some places quite a mile from the river. The same remark applies to the lower reaches, and all the low country will be under water in the wet season. From the above description it is evident that it will be probably difficult to find a road to the interior. I am strengthened in this opinion by the fact that the station people belonging to Mr. Macartney were not met with nor any tracks

seen. I took some stores on board at the Roper for the purpose of landing them at the Goyder. I am sorry that we were compelled to bring them away with us owing to not meeting with the party. I may add that, after examining the Hutchinson, we again returned to the Goyder, and walked up to our farthest from the head of navigation without meeting with any tracks, although they had had ample time to get there. I therefore infer from this fact, and my own observation, that there is no practicable route.

The other branch of the Goyder winds round and joins the stream about two miles from where it divides. It is also connected with Hutchinson strait, and two unimportant creeks fall into it. The island formed by this arm is low, and subject to inundation. Half a mile below where the Goyder divides, a large creek comes in from the south-west. This was examined for eight miles, where there are falls; the country rising rapidly and of the same description as previously noticed. After leaving this country, I have since thought that this creek, which appears to come from a distance, is the river that Mr. Lindsay took to be the Goyder; it is, however, mere conjecture. We anchored in the Goyder on 15th July; the three following days were spent up the river. On Sunday, 19th July, no work was carried on; but at noon I landed for the purpose of taking the sun. I was accompanied by the second officer and two of the crew, who remained in the boat. We had some difficulty in landing, and were too late for the sun. As this was my first landing at the spot, I walked a short distance along the beach, which is here bordered by dense jungle. There were three natives, who appeared friendly enough, and had in fact been on board the ship, and treated to food, tobacco, &c. As I was returning I was struck on the muscle of the left arm by a spear. Upon looking round to see from whence it came, I saw a native in the act of throwing a second. The second officer, who was with me, was unarmed. I luckily had my revolver with me, but not sufficiently handy to prevent him from throwing the second shaft; after which he disappeared in the jungle. I sent a bullet after him, but did not hit him. The first spear was very good in elevation, but some four inches wide of the heart; it merely broke the skin of the left arm. The fellow seemed greatly excited at the failure of his first shaft, and this, perhaps, accounts for the bad aim of the second. Those who know with what precision these fellows usually throw their weapons, will recognise this as rather a narrow escape, as I was less than ten yards distant. It was a complete surprise, as an attack was not even imagined. As this occurred immediately after giving these people a present of tobacco, it is worth considering if giving presents is not altogether a mistake. It is very likely they take the gift, thinking it merely a propitiatory offering. The Goyder is visited by the Malays, by whom it has been named "Limba Toddy"; and the natives here had one of the large canoes used by them in the trepang

fishing. Several other canoes of Malay make—that is, hollowed out of a tree—have been met with on the coast. Glyde's inlet of Lindsay, is a river that appears to come from a long distance; it is very winding, and at twelve miles up the water was fresh, a fact that, as we were then in the month of August, considerably past the middle of the dry season, suggests an abundant source, or a rainfall different from that obtaining in the better known districts. The head of navigation is distant about thirty miles from its mouth, which is fronted with sandbanks and rocks, which nearly dry for a distance of two and three miles. The mouth is situated at the head of the south-eastern bight of the bay, and about four and a half miles from the mouth of the Goyder in a W.S.W. direction. This river—inlet is a misnomer—is only navigable for launches drawing up to 7ft., and not exceeding 60ft. in length; it is a quarter of a mile wide at its mouth, gradually narrowing to twenty yards at thirty miles up. At this point the river-bed is dangerously rocky. On each side of the river extend well-grassed plains of good soil, of which I have brought a sample. The plains are subject to flood in places; the higher grounds are covered with jungle, fringed with magnificent fan palms, some of which are growing on the plains. Above this point the river meets a low sandstone range, and was not examined. The natives are very numerous, and not to be trusted, as during a walk on shore, taken to have a look at the country, and the launch being left in charge of the second engineer and two Chinamen, when about a mile from the boat I heard a shot fired, and hastened back, to find that the shot had been fired to frighten a native who had been seen creeping through the jungle in the direction of the boat. He had a bundle of spears with him, and his stealthy action was scarcely consistent with honest motives. I felt sorry at the time that the engineer had not done something more than try to frighten him.

I found on my return that the boat was nearly surrounded and in force. As the river at this point has high banks, clothed with jungle, and is not more than 80ft. wide, everything was in favor of the blacks. So we weighed, and descended the stream for about two miles, to where the jungle gave place to open plains, the natives following yelling vociferously. Here we landed, intending to have an interview with them. After quite an hour's persuasion, four of their number slowly and cautiously came out into the open, and finally came up to us. I was very much astonished to find among them one whom I had seen at the Goyder, in company with the party who so nearly speared me. He saw he was recognised, and protested in the Macassar tongue that he had nothing to do with it, as they had been induced to leave their shelter by professions of friendship. We gave them some pipes and tobacco, told them we did not wish to molest them, advised them as to the consequences of molesting us, and parted. Round

their camp fires that night, while discussing, as they assuredly would, the events of the day in connection with their strange visitors, prominent among the many things that would excite their wonder would be the fact that they had that day met a man whom a few days previously they had tried to kill, and *he* presented them with tobacco, and so their designs ended in smoke.

The next stream to be noticed is the Blyth. It is navigable for perhaps a distance of eighteen miles. At ten miles from its mouth it divides, the western branch I take to be the Cadell of Lindsay. The country close to its mouth is of the usual saline flat order, but of no great extent. In ascending the appearance improves rapidly, and for several miles on either side there is one unbroken plain, covered with an abundance of coarse blady grass. After describing this part of the country lately to the gentleman who holds many thousand square miles of Arnheim's Land, he evinced an amount of satisfaction that warrants me in saying that for stock the country cannot be surpassed. The Liverpool and its tributaries, the Tomkinson and Taylor, come next in order. The Liverpool was ascended for a distance of twenty-five miles in the *Palmerston*. There is a chart of the Liverpool extant, although at the time of my visit I had not one on board, as they were not then procurable in the colonies. The country in the vicinity of the Liverpool has been, in my opinion, considerably over-estimated by Captain Cadell; it is, however, a first-class country for stock.

The Tomkinson is narrow, tortuous, deep, and turbid. We ascended in the launch for a distance of thirty-five miles. At this point the low bare hills of Lindsay bore N.E., distant four miles, the intervening country being the ordinary flooded plain covered with coarse reedy grass. The river is navigable for vessels not exceeding 50ft. or 60ft. in length for a distance of thirty miles, at which point the low bare hills are not over two and half miles from the river. These hills that lie near the edge of the tableland are low round elevations, covered with broken slate of an olive color, nearly destitute of vegetation, and somewhat resembling the Beatrice Hills of the Adelaide river.

The Taylor is small and unimportant, is nearly dry at low water at its junction with the Liverpool. At six miles up the stream divides, neither branches being navigable but for boats. It appears to be a river only in the wet season; the same remark applies to the Tomkinson.

The natives on the Liverpool were very friendly, and apparently glad to see us; but very much frightened, or else very shy, as we did not see much of them.

We arrived at the head waters of the Tomkinson late one night. At daylight next morning there was a very dense fog; but having taken the bearing of the low hills (Lindsay) on arrival, we walked across the plains to strike them. Suddenly, at about 8 a.m., the fog lifted, and we found we were in the neighborhood of a large

number of natives, who all—men, women, and children—came running towards us in the most friendly manner. They appeared very pleased to see us; and one old man wished to present me with a little girl, probably about six years old, and seemed much disappointed at my non-acceptance. The girl—bright, large-eyed, and intelligent—seemed perfectly willing; and I am informed it is considered a great honor in the tribes to have a child presented to you. This old man carried a spear with two prongs about 18in. long, made of telegraph or else stout fencing wire. It was a most formidable weapon, and had doubtless been obtained from a great distance. After making the men a present of pipes and tobacco, and distributing a few blankets to the ladies, who certainly needed them, we parted very good friends.

The King river is only navigable for small craft, although vessels drawing up to 15ft. or 16ft. can get inside its mouth, and find a good but limited anchorage three-quarters of a mile from Mangrove point.

The country at our farthest is undulating ironstone, poorly grassed, and sparsely wooded.

From the summit of some isolated rocky pinnacles we obtained an extended view of a not very inviting looking country. Everywhere, to the east, south, and west, the country is gently undulating hills, with outcrops of ironstone, timbered with a few stunted trees. In the distance, to the south and west, are high broken ranges from six to ten miles distant. These ranges are probably the northern limit of a high, broken sandstone range that I have since found lies at the head of the east and south Alligator rivers.

The examination of the King river completed, we called at a native camp in Bowen straits to land a couple of natives of the Port Essington tribe, who had been with me exploring for nearly two months. The power of memory possessed by one of these was very great. He had been with me continuously, and seen everything that I had seen. It was a real pleasure to me to see him relate his experiences to his tribe. Although I could not understand a single word of his speech, his powers of mimicry were so perfect, and his gesture so natural, that I was enabled to follow him and realise vividly who or what he was speaking of, even to minute details.

The Alligator rivers, three in number, were discovered in 1820 by Captain Philip King, who named them respectively the East, South, and West Alligators, owing to their similarity.

The east and south rivers have been well described by Captain King, pages 98-100, vol. III. "Australian Directory," that is, up to the point where his exploration ceased. The examination made by me was therefore chiefly confined to the upper reaches and the surrounding country that had not previously been explored. An extended report on them appears as a Parliamentary Paper.

The south river was ascended without difficulty in the *Palmerston* for a distance of thirty miles and examined in the launch for a further distance of forty miles. The east river was examined for a distance of forty-five miles, forty of which can be navigated by small craft drawing from 8ft. to 10ft. There is a large tidal rise in these rivers, and the streams run with great strength.

Large herds of buffalo were seen on the east river. We shot several, and found their meat both juicy and tender, and quite equal to average beef obtainable at Port Darwin.

The native drawings on bark, that were shown at a late meeting of this society, were obtained in this district; and on the west bank of the south river, about sixty miles from the mouth, in walking across the plains, a part of which had lately been burnt clear of grass, we came upon what may be called a very curious drawing. At first sight it looked like a gigantic cart-wheel; but after careful measurements were taken, and a sketch of it made in my pocket-book, it was manifest it was an excellent representation of a spider's web. It measured fourteen yards in diameter, and its production involved an immense amount of labor. The plains are at this part subject to inundation, and it appeared that after the water had subsided, and the ground still damp, the artist, or artists, for I can scarcely think it was done by one man, had taken a flat stone and patted the ground, and thus made it smooth, and leaving the various radial lines and their concentric circles as plainly visible as if it had been done with a pavior's dolly. Outside this large circle were depicted, in outline, a man in the act of throwing a spear, and two or three animals that were possibly intended for kangaroos in the act of feeding. The sketch taken has, unfortunately been lost. I had been very careful with the measurements with a view to reproduce it drawn to scale; but I can now only remember the diameter.

THE ADELAIDE RIVER.

Early in July, 1884, I made a preliminary examination of this river; but, not being in possession of any chart of the river, I could not then find the Beatrice rock.

The Adelaide is navigable at tidetime for vessels drawing 16ft. to 18ft., and, with the exceptions of the Beatrice rock and the bar, the upper reaches are apparently clear of any obstruction. The only difficulties are at its entrance through Adam bay and the first reach after passing the narrows. It is accessible to vessels drawing 10ft. to 12ft., and navigated by the *Palmerston* for over eighty miles. The river winds through magnificently-grassed plains, with lagoons at frequent intervals. Marriki, one of the stations of Messrs. Fisher & Lyons, is situated on the Adelaide, and they get all their supplies by water. Mr. H. W. H. Stevens, the energetic general manager of the firm, has successfully grown a variety of tropical products, an account of which can be found in various quarterly reports of the Government Resident.

THE DALY RIVER.

The massacre of Messrs. H. Houschildt, J. Noltenius, J. Landers, and T. Schollert, by the natives at Coffor Camp, on the Daly river, led to the dispatch of the *Palmerston* to that locality in June, 1884, with a police party, including Inspector Foelsche. On landing the inspector represented himself as a coffee planter; and by adopting similar tactics to those used by the natives in beguiling poor Houschildt away from his camp, he persuaded three of the murderers to go on board the *Palmerston* for "'bacca" and "grog." when I had them placed in irons. Two others were subsequently arrested, and the five were taken in the steamer to Port Darwin.

This river is navigable with proper light draught river boats for a distance of about sixty miles. Two years ago I made a detailed survey of its mouth, and about eight miles of this stream, the whole being equal in length of our Port river. Langdon island lies just inside the mouth, thus making two channels. There is not more than 3ft. on the bar at low-water spring tides; the rise of tide is, however, large, being from 18ft. to 24ft., so that large ships can enter and find good anchorage. The plan has been published, and in view of the valuable copper mines now known to exist near, the river should prove useful.

I think something like 2,000 tons of copper ore have been exported from the Daly to Newcastle to be smelted, the whole averaging something like 26½ per cent. of copper.

There are some valuable reports extant on the nature and extent of agricultural lands on the Daly, and settlement has already begun. In July, 1886, Messrs. McKinlay and Edmunds made a survey of this river, and proceeded up to a distance of thirty-six miles.

VICTORIA.

The Victoria river was discovered and surveyed by Captain Stokes, of H.M.S. *Beagle*, in 1839. It penetrates farther into the continent than any other river on the Northern coast, and empties its waters into the Indian Ocean in lat. 14° 40' S., and long. 129° 21' E., or say twenty miles east of our western boundary. Its mouth is twenty-six miles wide between Turtle and Pierce points.

It is now over forty years since the chart of this river was first published, and more than twenty years ago a pamphlet was published here "under authority" by the Government printer. This publication speaks highly of the Victoria as a port for shipment of stock for India, and alludes to it as the probable locality of the first settlement in Northern Australia. Since that time, and throughout the progress of settlement of that country, the Victoria has been totally lost sight of, and this notwithstanding that we had reliable information respecting the river and the country through which it runs.

The Victoria is navigable for ships of the largest class for a distance of fifty miles from the sea, and further for a distance of sixty miles with suitable river craft drawing not more than three feet. This is to a point known as Gregory's Camp, where that explorer camped for some months, and may be considered the head of navigation.

I do not know at what part of Holdfast reach the *Beagle* lost her anchors, but I found excellent holding ground in four and five fathoms half a cable from the eastern shore, and from one to three cables below a small rocky point, with a creek immediately above it, and two and a half miles above the Beagle wells.

The navigation of the Victoria presents little difficulty even for a stranger. The best route into the river is by the Queen's channel, the entrance to which is between two sand heads, a mile apart. The northern sand is the extreme of Quoin island spit; the southern is an isolated shoal, and liable to shift, as the Admiralty chart gives the distance as two miles.

The Queen's channel is both wide and deep. The tides set parallel with its course, and run with great strength. The river above Holdfast reach, I have already said, is only navigable for suitable craft. For a distance of nearly forty miles the river is filled with extensive quicksands; in some places having deep channels through them, in others forming bars right across the river, having only a few feet over them at high water. These shoals are subject to great and frequent changes; and this being the case, a survey of the upper reaches cannot be recommended. The lower reaches run through a sandstone gorge, and are now nearly the same as when discovered, and are likely so to remain.

Perhaps the value of this magnificent stream as a commercial highway may be better shown by comparison. In comparing it with others I have only in view its capability as a harbor, and its easiness of access. Bearing this in mind, I have no hesitation whatever in saying that the Victoria is far superior to the Thames, Mersey, or Hooghly.

The quantity of country that the Victoria is the natural, and, I believe, the only outlet for is approximately 90,000 square miles, or, say, 57,000,000 of acres. This includes a small strip of Western Australia. Of the major part of this vast tract little is generally known; it is, however, all or nearly all taken up by pastoralists, and is being rapidly stocked.

As to the quality of the land, reports are in existence from those who have travelled over a great deal of it. I shall quote from a paper by Mr. Wilson, geologist to Gregory's expedition, and published in the journal of the Royal Geographical Society, vol. 27, page 141:—

This gentleman observes, "In no part of the world have I seen grass grow so luxuriantly; and Mr. H. Gregory observed to me, during the ten days' journey when I accompanied him and his

brother to the Upper Victoria, that he had seen more grass land than during all his life before." He farther on speaks of large tracts of good land on the "Roe Downs, Jasper Plains and Beagle Valley;" of country on the "Norton, Shaw, and Saunders, and at the head of Sturt Creek and Fitzmaurice rivers, amounting in the aggregate to 5,000,000 of acres," and adds "these tracts came under the limited observation of the party, and may all be considered well watered pasture land." Such is the Victoria and the country it drains.

In conclusion, I cannot do better than quote the words of Captain Stokes, of H.M.S. *Beagle*, its discoverer. He says, "A glance at the map will show that we have not overrated its importance, or acted hastily in calling it the Victoria; and it must be admitted that, as the Murray is to south-eastern Australia, so in value and importance is the great river Victoria to the opposite side of the continent."

We have this evening briefly described fifteen of the principal rivers of the Northern Territory. To get this within readable limits, the principal trouble has been not what I should say, but what were best left unsaid, for it would be easy to write as much almost on every one of them.

The rivers of any country are an index of its rainfall, and consequent fertility. Chemistry teaches us that water enters so largely into the composition of everything, that rain means produce. Now the Northern Territory has an average rainfall of over five feet, or quite four times that of South Australia proper.

The agricultural future of this great country can only be limited by the limited faculties of mankind. Nature has, apparently, done everything possible.

Pastoral settlement is progressing apace.

With reference to mining, the report of the Rev. J. E. Tenison Woods, recently issued by the Government Printer, Adelaide, will be found to contain an exhaustive report on the mineral resources of the Territory.

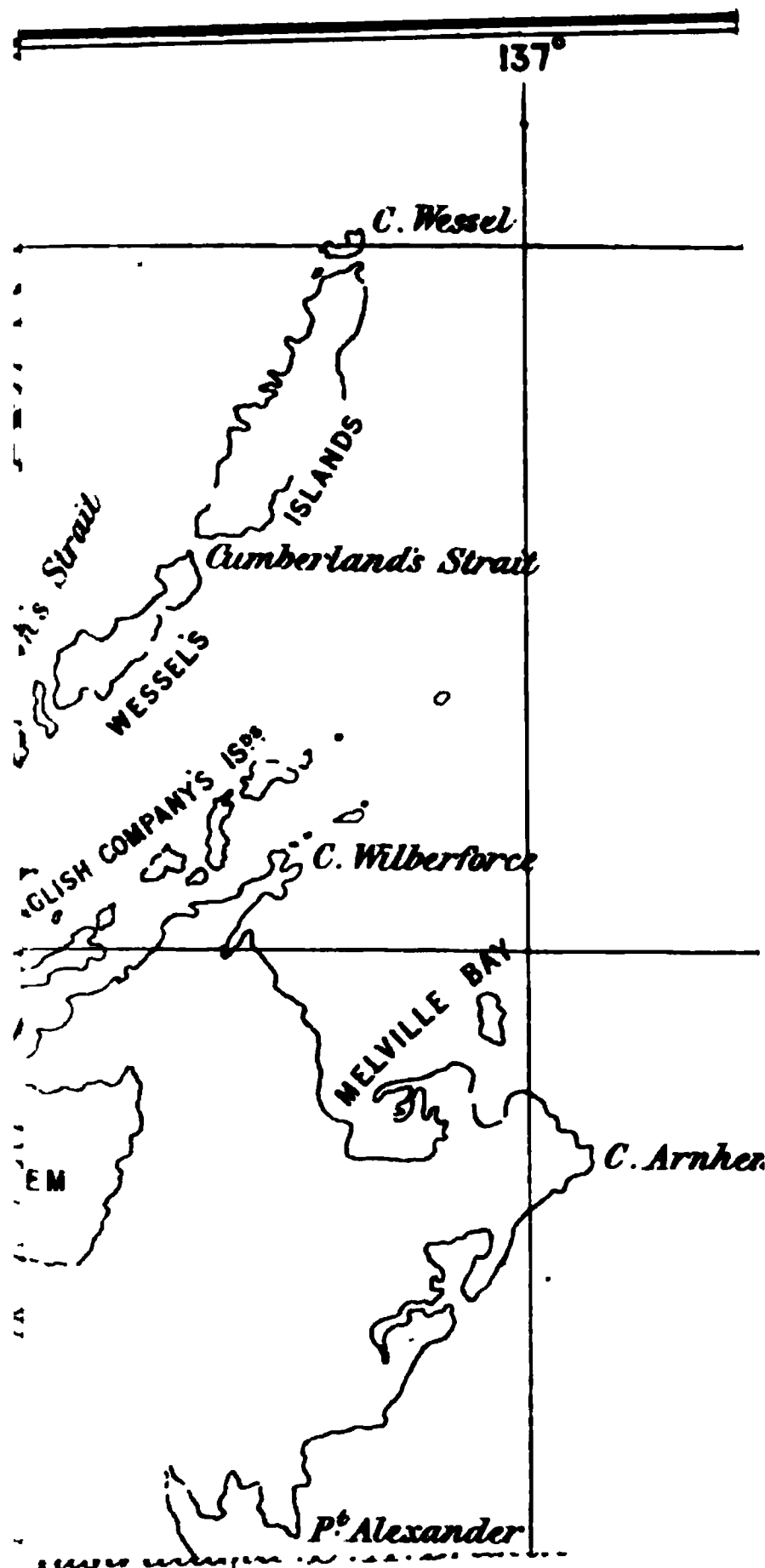
This is the country that one at least of our legislators has dubbed a white elephant; and lately, in the Council Chamber of the colony, an hon. member solemnly proposed to give it away. Had the hon. gentleman proposed a general exodus to that veritable land of promise, of which you have just heard, and which even now flows with milk and honey, I should have been with him, and moved further that, before leaving, we paint the slopes of our lovely hills with gigantic capitals, "South Australia to let."

Strait
WESSELS

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Further Notes on the "Aldolinga," or "Mbenderinga" Tribe of Aborigines.

[By F. E. H. W. KRICHAUFF, Esq., M.P.]

At the request of A. W. Howitt, Esq., of Sale, Victoria, I desire to explain several matters which seemed not clear to him in my paper which I read on the "Aldolinga" tribe, and I take this opportunity to add to it from further information which I have since received.

The Rev. H. Kempe, after reading my paper on the Aldolinga tribe, writes to say that the proper name of the tribe should be "Mbenderinga," viz., those who live at the Finke. The Finke is called "Lirambenda." "Lira" is creek, and "mbenda" permanent water and spring. He also says that the name for the good supernatural beings of an everlasting existence should be spelt "Altjira," and adds the name of another, "Jarimba," the Altjira of flowers and fruits.

It does not occur very often, but if a marriage takes place, for instance, of a Bunanke with a Burule woman of another tribe, she henceforth belongs to her husband's tribe or local division, but not to his class; she always remains a Burule. The class system is so far good that it prevents marriages between the nearest relations, such as between father and daughter, or mother and son; but it carries with it another bad practice. A Beltare man can cohabit with any Kumare (or Gomáre) woman, or a Burule with all the Bunanke women. He may sleep with his brother's wife, or his brother with his wife; and this occurs very frequently. As regards the intermarrying of blood relations, it is already set out in the table which I gave in my paper, that if a Bunanke, for instance, marries a Burule woman, and the brother of this Burule woman marries a Bunanke woman, the children of the first are Baltare, those of the second Kumare, and can therefore intermarry.

The tribal government is in the hands of all old men, who are called "Knirrabata." There is no headman by descent or by election. In this tribal council the doctors and wizards, "Ngankaras" (both in one person), are of great importance; and they carry out the resolution arrived at, or see that it is carried out. To this office they are appointed by several ceremonies which are not yet understood. The wizards say two sons of the gods (Altjira wura) give them, near the water, in the presence of one or several old men, seeds, into their body, by which they become ngankaras. Anyone losing these seeds loses his office; and it is said that these seeds are lost in sleep, after drinking salt water.

The tribe has laws, or rather customs, which the wizards and old men uphold. An offender has to hear hard words, the more so if he defends himself. If he admits the offence he is generally merely reprimanded, or he must leave the neighborhood for some time. If, however, a native hits or spears another native, the person hurt, or the next of kin, are ordered to hit or spear the offender. All others stand round about as a protection, to see that it is not overdone.


The lately circumcised young men are used as messengers to call meetings, &c. At the initiation of a young man, one, or some men cut a vein on his arm; the old men drink the blood as it flows, in the belief that this blood makes them again strong and healthy.

In distributing the food the children and the parents are first cared for, the nearest of kin next receive more or less, according to the quantity at hand; but the older persons receive the best and fattest pieces.

The old men decide upon the locality where the huts are to be erected. They do not care how they are constructed. The women always build the huts. A hut is also erected for the men (nganjala), and another for the women (lakara). To this latter the women go, if they do not wish, or are not allowed, to be with their husbands, or if the woman is near her confinement. If a person dies in a hut, it is burnt with all contents, and the tribe erect huts on another place, at not too great a distance, but perhaps a few hundred yards away.

The missionaries have no proof of infanticide being practised by the tribe; on the contrary, it is denied, while they admit that tribes living farther south kill and eat children.


Gesture-language is very common with them, and they can express by it nearly everything. While the property of a deceased is burnt neither men nor women speak aloud, in fact, they do not like to speak at all; if compelled to do so, they speak only in whispers, but generally explain their meaning by signs. Again, if, while a number of natives sit together talking, perhaps holding a meeting, another native arrives and sits down, all others clap their hands on their hips, and he, on sitting down, does the same. They act in the same manner if one of them is sneezing. This action seems a kind of salutation. Signs and signals are made by smoke.

The ordinary painting is like  on the chest down to the belly, the outer lines black, the middle line red, and the cross lines white. The painting is done to prevent becoming lean. For the different corroborees or dances they paint differently. For a kangaroo festival (ariratjurunga) they paint themselves red, in the centre a thick long line, with a short thin line to both sides on the top, which painting is intended to represent the body and forelegs

of the kangaroo. The hindlegs, with the neck, head, and the tail, belong to other tribes. For the euro festival they paint themselves a greyish yellow; in the middle a thick broad line, with two small ones on the top, to the right and left and below, in the same way, two somewhat longer lines, which lines are to represent the body, forelegs, and hindlegs of the euro. For the wallaby festival (arua tjurunga) they take black color made of charcoal, and paint as they do at the euro festival. Other parts of both these animals they dare not paint, as these belong to other tribes. For the emu festival they also take black paint, and represent only the body and the legs. The wizards are not painted at these festivals.

For the young men's corroboree (tjaubutmanja tjurunga) they paint the belly white, and paste flowers and down on the lines; the wizard makes a black line lengthways, the old men a black line across. This is the only festival for which the wizards paint. For the edible fruit and flower festival (jarimba tjurunga) they paint white, and paste flowers on the lines.

When mourning, the mother of the deceased, and her sisters from the same mother, paint the whole body white; the father,

the front white, like ; the brothers of the deceased, a thick

white line across the belly; his or her sisters, a broad white line across the forehead. Other wives of the father make a white line on the forehead, and some on the belly. It is the same if husband or wife dies, the husband paints in front, the wife the whole body white.

While the northern tribes paint, for fighting, their face white, and the body in front up to the knees, and on the back all over like white snakes, this tribe, like those living to the east, west, and south, make one broad black line in form of a crescent across the breast, one thick black spot in the middle of the forehead, and a black ring around the eyes. The idea thus to paint seems to express hatred, and to prevent being recognised. Messengers paint red on the belly, a big dot in the centre of a wide ring, with about nine short lines above the ring; and they make, below the eyes and across the nose, a thick red line. For the initiation of young men they have only a string around their body and their hair, while all other men have their whole body painted red. As already mentioned, other tribes in the neighborhood paint different parts of the animals on their body. The paint used is red and yellow ochre, white clay, lime, and charcoal.

At the corroborees, dances, or festivals, as you may call them, only a few of the men dance. An old man commences to sing, the others, and the women chime in, and give thus the time. This is their prayer.

They raise scars on parts of their body, generally only across the breast and the upper portion of the arms; perhaps two, three,

four, and more on the breast, and a few on the arms. Neighboring tribes are said to raise also scars lengthways on both sides of the breast, also lengthways on the upper arms, but bent around towards

the front and back, thus:  They make these scars by

cutting the epidermis, and rub pounded sandstone into it, except on the upper arm, where they use pounded charcoal. The scars are simply made to beautify their bodies. The missionaries do not think that any family or tribe can be recognised by the scars, and, although they have tried to ascertain whether the tribe has any totems, they have not been successful so far.

Their gods belong also to other tribes, and if their men were to paint the head of the wallaby, which belongs to another tribe, punishment would follow. On festivals, men from other tribes are frequently present. A proper translation of Merrenna, Indiara, and Uranama, is hardly possible. Merrenna is the father or creator of the emu, Indiara of the kangaroo, and Uranama of the wallaby.

VOCABULARY.

Man	atua	Sun	alinga
Woman	aragutja	Moon	taia
Head	kaputa	My	nuka
Hair	bunga	One	niata
Eye	alkna	Two	tera
Nose	alla	Three	{ urbutja (which means
Tongue	alinja	Four	{ some), or njara (much)
Ear	ilpa	Thumb	ragamagura
Hand	iltja	Bone	unguana
Foot	inka	My foot	inka nuka
Blood	alna	They	unguanga
Fire	ura	His	egura
Water	kwatja		

P A P E R S

READ BEFORE THE

Royal Geographical Society of Australasia.

3rd SESSION, 1887-8.

SOUTH AUSTRALIAN BRANCH.

THIRD SESSION, 1887-8.

COUNCIL MEETINGS.

May 31st, 1887.

Present, six.

A draft address to Her Majesty the Queen, submitted by the Victorian branch, was read, and after a few minor alterations the President was requested to sign it on behalf of the S.A. Branch.

Lord Brassey and His Highness the Sultan of Johore were elected honorary members.

July 29th, 1887.

Present, seven.

Letter from Victorian branch suggesting that the Council should use its influence to obtain reduced railway fares to members of the Royal Geographical Society of Australasia attending the Adelaide meeting in August. The President and the Hon. R. A. Tarlton were deputed to wait upon the Government in the matter.

August 8th, 1887.

Present, seven.

The Rev. J. Chalmers, a missionary of New Guinea, offered to read a paper on New Guinea. Accepted; and Mr. Chalmers elected an honorary member.

August 19th, 1887.

Present, seven.

Mr. F. E. H. W. Krichauff, M.P., tendered his resignation, as a member of the Council, on account of pressure of private work. Accepted with regret, and Mr. R. K. Thomas elected until the next annual meeting.

September 19th, 1887.

Present, six.

The Hon. J. H. Angas, M.L.C., wrote offering £100 towards the funds for exploring Central Australia. Resolved—"That the
 " South Australian branch being of opinion that the time for
 " action has arrived, should at once take such steps as will lead to
 " the carrying out of the resolution passed at the Interprovincial
 " Conference held at Adelaide, on the 9th instant, viz. :—'That it
 " ' it is desirable that all the branches of the Royal Geographical
 " ' Society of Australasia unite in securing the due exploration of
 " ' present unknown portions of the interior of Australia.' "

Resolved, that the Ven. Archdeacon Farr, M.A., and Messrs. J. W. Jones and Thos. Gill, be a sub-committee to ensure the retention of native names as far as possible in Australian nomenclature, and to communicate with the other branches upon the subject.

Resolved, that the other branches be communicated with upon the subject of sub-committees to deal with the proposed Federal Constitution.

Mr. S. Newland offered to read a paper on an aboriginal tribe, "The Parkengees."

Mr. Thomas Gill gave notice that at the annual meeting he would move—"That, with a view of extending the usefulness and
 " popularity of the Royal Geographical Society of Australasia,
 " South Australian branch, committees of five be appointed on the
 " following sections :—

- " 1. Geographical, including Exploration.
- " 2. Historical and Ethnological.
- " 3. Geological. 4. Botanical and Zoological.
- " 5. Commercial and Educational ; and 6. Meteorological."

November 4th, 1887.

Present, nine.

Letter read from Baron von Mueller, suggesting Mr. W. H. Tietkens as leader of the Central Australian Exploring Expedition, in the absence of Mr. Ernest Giles. As the season in Central Australia is reported to be a favorable one, the Council decided to dispatch a party under Mr. Tietkens, if the Victorian branch would assist, and that subscriptions should be solicited from the public for the exploration of Lake Amadeus.

A congratulatory letter to be sent to Mr. W. R. Cuthbertson on his successful trip in New Guinea, and he was elected an hon. member.

January 10th, 1888.

Present, six.

An ethnological map of Coburg Peninsula, Port Essington, Northern Territory, compiled by the late Rev. Confalioni, formerly a missionary priest at Port Essington, was presented to the society by Archbishop Reynolds, of Adelaide.

January 17th, 1888.

Present, five.

Letter of acknowledgment from His Highness the Sultan of Johore, an honorary member, was read.

The Council deputed several of its members to wait upon Sir F. Napier Broome, Governor of Western Australia, on his arrival in Adelaide, and inquire whether the Western Australian Government would assist in the proposed exploration of country around Lake Amadeus.

February 10th, 1888.

Present, five.

The President reported that, owing to the continued illness of Sir Thomas Elder, G.C.M.G., the proposed exploration of Lake Amadeus by voluntary subscriptions, would have to be abandoned for the present.

The question of raising funds by other means as a commercial enterprise, and distinct from this society, was suggested, and it was resolved—"That this Council, while unable to take any official part in a private venture of the nature suggested, will have much pleasure in placing at the disposal of any expedition which may be dispatched all the information which it is possessed of, on the understanding that the society will eventually receive the records and plans of the journey."

May 25th, 1888.

Present, five.

The hon. secretary, Mr. A. T. Magarey, reported that an association named the Central Australian Exploring and Prospecting Association, Limited, had been formed for the purpose of exploring and prospecting in Central Australia and the regions around Lake Amadeus.

Delegates to the Science Conference, to be held in Sydney, were appointed.

Messrs. Patrick Auld, William Thring, Stephen King, J. W. Billiatt, and F. G. Waterhouse, surviving members of Stuart's exploring party, and Messrs. Charles Winnecke and David Lindsay, explorers, were elected honorary members.

A donation of books was made by J. W. Tyas, Esq.

June 5th, 1888.

Present, five.

A letter from the Sydney branch was read, suggesting that the Imperial authorities should be asked to grant some substantial reward to Mr. Bevan for his explorations in New Guinea.

July 6th, 1888.

Present, seven.

Only formal business was transacted.

ATTENDANCE ROLL.

SESSION 1887-8.

COUNCIL MEETINGS HELD, 12.

Sir Samuel Davenport, K.C.M.G...	..	..	..	..	..	..	9
Sir Thomas Elder, G.C.M.G.	..	..	..	..	..	..	5
Hon. R. A. Tarlton, M.L.C.	..	..	..	..	..	..	8
Hon. David Murray, M.L.C.	..	..	..	..	..	..	3
W. B. Wilkinson, J.P.	..	..	..	..	..	..	8
J. L. Bonython, J.P.	..	..	..	..	..	..	5
G. W. Goyder, J.P.	..	..	..	..	..	..	1
R. K. Thomas	..	..	..	..	..	..	4
J. W. Jones, J.P.	..	..	..	..	..	..	8
A. T. Magarey	..	..	..	..	..	..	12
Thomas Gill	..	..	..	..	..	..	12

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

ANNUAL MEETING.

The annual meeting of the above society was held at the society's rooms, Grenfell-street, on Friday afternoon, July 6th, 1888, when there were present—Sir S. Davenport, K.C.M.G. (in the chair), Sir T. Elder, G.C.M.G., Sir Wm. Milne, the Hon. R. A. Tarlton, the Hon. S. Tomkinson, the Rev. C. T. Newman, Messrs. W. Everard, J. L. Bonython, S. Newland, W. B. Wilkinson, R. K. Thomas, T. Gill (treasurer), and J. W. Jones and A. T. Magarey (secretaries).

The secretary reported the receipt of donations in the shape of books, &c., from friends and kindred societies. Votes of thanks were accorded to the donors.

The VICE-PRESIDENT (Sir Samuel Davenport) read the annual address, which, after some introductory remarks, was as follows:—
“The council would feel happier if they could now record the performance of some useful exploring work within the year. The unknown regions of our own colony call us to active duty from a yet vast area barely diminished since the year 1886. The cause has not been want of will, but want of funds. The reports of Mr. David Lindsay of his travels across the continent, 1885-6, and the paper read by Mr. Tietkens in 1886, had made clear, in the common interests of the colony, the claims our interior had for full discovery. From the stigma somewhat tauntingly set up to us of our interior country being nought but desert, meaning thereby not simply an uninhabited but uninhabitable region—a wilderness in the Sahara sense—the observations of these travellers served to deliver us. Indeed, they furnished proof of the existence there of

vegetable growth and mineral stores of the kinds colonial wealth is built on. South of the MacDonnell Ranges, under latitude 24° , said Mr. Tietkins, 'several large and important watercourses leave the Petermann Range, and these creeks with their splendid fringe of gum timber force their way in a northerly direction.' At the foundations of a huge granite upheaval, call Ayers' Rock, 1,100ft. high and half a mile long, were deep pools of beautifully clear water on which the sun never shines; and some miles further on, from a still higher granite rock, Mount Olga, covering a larger area, 'issues a stream of beautiful water as permanent as the hill itself,' and more monoliths are apparent in the far distance. To Mr. David Lindsay's observations of 1886 are appended some results to this date. He states that 'during my private exploration, 1885-6, I discovered and reported a tract of country to be metalliferous, and probably a gem-bearing area, which in less than two years has caused a great amount of speculation in the development of a gem supposed by many, and also by myself when I first picked up the stones in 1886, to be rubies. I also discovered a belt of auriferous country, assays from some of the reefs ranging from 7oz. to 33oz. of gold and 18oz. of silver to the ton.' Another direct result of that expedition has been the recent fitting out of three prospecting parties for Central Australia, and the drawing together of a population of between 200 and 300 in the metalliferous area before mentioned. 'The country lying to the west and south-west of Powell's Creek, which I desired assistance to enable me to explore in 1886, still remains a *terra incognita*. The following shows that it is worth exploring:—A station manager from Sturt's Creek rode out some distance south-easterly, and discovered a large fresh water lake surrounded by excellent country. Some station people rode out forty or fifty miles westerly from Helen's Springs (thirty miles south of Powell's Creek), and found good pastoral country, springs, and large deep blue waterholes under cliffs of a honeycomb rock. The country was described as being apparently of a volcanic formation. South of Helen's Springs I passed a hill of broken rock. Its peculiar appearance attracted my attention. It is about 70ft. high, with a flat top. The whole hill appears to be a mass of broken stone, as you see at the mouth of a quarry. On the top were some half-dozen circular holes, like inverted cones. The largest was 40ft. in diameter, and 20ft. deep. Evidently there had been an outburst of gaseous matter here. I should be afraid to say it was volcanic, although there are some slight indications of a

volcanic nature in the soil and stones. A gold-bearing region lies about Tennant's Creek, and extends away to the westward, probably continuing to the Kimberley district. The indications are metamorphic slate, good quartz, iron, and ironstone, bounded by a granite country. A little alluvial has been obtained, and also a rough specimen of auriferous stone.' Now these observations of Mr. Lindsay arose in a pretty direct line of travel across some six degrees of latitude, from 18° to 24° of the central portions of our colony, leaving vast expanses to the right and left throughout, of which we literally know nothing. More emphatic is the call on us to examine these regions owing to the large public outlay already incurred in the extension of railways and telegraphs toward them. The consequent advanced facilities for bringing produce of those remote parts into contact with a market and with the sources of supplies for population settling there, as well as the additional progress their occupation would cause in the final railway-linking of South Australia proper with its Northern Territory. At one season of the year the desire of the Council to realise exploration in the foregoing direction promised accomplishment so far as the country adjacent to Lake Amadeus was concerned. Towards this the Victorian society very generously, and in conformity with the principle of federate action discussed at the conference, offered material assistance; some further means would have been available from private and public sources, but owing to the illness of Sir Thomas Elder, G.C.M.G., the proposed expedition was reluctantly abandoned. And all we can assert of action taken in this direction during the year exists in a contract made with a private party subsequently organised to explore in that direction, that their records and plans shall be handed over to the society. Meantime, amidst our enforced inaction, the work accomplished by sister societies in advancing geographical knowledge affecting Australia, gives cause for congratulation. Thus the Victorian Society in June, 1887, dispatched an exploring party to New Guinea. The command was given to Mr. W. R. Cuthbertson. Having left Melbourne on June 2nd, the party reached Thursday Island on the 24th, and Port Moresby, New Guinea, on July 2nd. Their special object was to explore the highlands of the south-eastern portion of New Guinea. In the exercise of sound discretion Mr. Cuthbertson made his introduction to the inhabitants through the medium of the known character and acquired influence of the missionary station Kappa Kappa, and

adopted the main watershed as promising the easier route for entrance into the mountain ranges. He had the satisfaction of meeting with great success, without accident, sickness, or loss worthy of note of any kind; peaceably, and apparently in a way calculated to have left a friendly impression on the minds of the natives for the benefit of succeeding travellers. His narratives will be read with interest. Human dwellings high up in the heads of large trees are an especial feature. He describes abundant waters; rich grassy lands in places, good for cattle and horses; rich soil for tropical plants; large timber, and dense jungles. There is limestone, slate, quartz, and granite in abundance. The mountains visited are imposing. The highest whose summit Cuthbertson ascended ('Mount Obree') was 8,000ft. high. In the far distance Mount Owen Stanley—yet more lofty—was visible. Eucalyptus and mahogany woods, kangaroo and pigs, pigeons and birds of paradise, were found in abundance, whilst cocoanuts, sugarcane, bananas, breadfruit, and yams, seem to constitute the chief stores of the inhabitants. Mr. Cuthbertson was back again in Melbourne early in October. One further outside movement of the year on the like ground claims our notice, namely, 'Antarctic exploration,' a subject, as I think, we shall all agree for Imperial and colonial consideration. Colonially, it may mean the founding of large whaling and sealing establishments somewhere on our coasts or adjacent islands, or other direct material gain; but Imperially and colonially, in the cause of science and national honor, we are the people of the world on whom the duty of solving Antarctic questions most properly lies. The enterprise would be but consistent with our prestige. The accomplishment would rightly close a chapter in our Australasian history, for Captain Cook, in 1773, whilst on his way to observe a transit of Venus at New Zealand, and prior to his discovery of Australia, dipped further south in proximity to the Antarctic Circle than any recorded previous navigator. Australia is otherwise specially associated with Arctic explorations, inasmuch as two of the most noted Arctic navigators of this century have dwelt in Australia. One being Captain Parry, manager of the New South Wales Australian Land Company, over two or three years of the period, when his great friend and fellow Arctic navigator, Sir John Franklin, was Governor of Tasmania. Nor does the series of association stop here, for Captain—afterwards Sir James Ross—in command of the *Erebus* and *Terror*, went on the first British mission of Antarctic search. Ross's chief mission was to fix the

site of the South Magnetic Pole as he had previously done that of the North Magnetic Pole. Briefly I may note, for those who care to investigate it, that the subject of Antarctic exploration under British control has been discussed and advocated at various times within the last two years. At a meeting of the British Association at Birmingham its adoption was favored; in a paper read by Mr. C. Trail before the New Zealand Institute, 1886; in a progress report of a joint committee of the Geographical and Royal Society of Victoria by their President, Mr. Crawford Pascoe, 1887; by the Royal Colonial Institute, and by the Royal Geographical and Royal Society of London, the proposed enterprise has received a generous approval, and although application lately made to the British Government to organise a party jointly with the colonies has not now been successful, the question has gathered so general and influential a support, and has such strong arguments inherent to it, that we can scarcely doubt the time of its being undertaken is not far distant. Certainly the present is a more favorable period to take the lead in Antarctic work than the near future may promise, for the navigation of these southern seas and investment in business relationships with their peoples by powerful nations of the old world advance in rapid strides; and there draw nigh the probably great and radical changes in previously established currents of trade and travel which will follow the completion of the short and central junction of the Atlantic and Pacific seas at Panama or Lake Nicaragua."

On the motion of Mr. W. EVERARD, seconded by Mr. R. K. THOMAS, the report and balance-sheet were adopted.

SIR THOMAS ELDER moved the election of Sir Samuel Davenport, K.C.M.G., as President of the society. He had had a long and intimate acquaintance with Sir Samuel, and knew of no one in the colony better suited for the position. (Hear, hear.)

Mr. J. L. BONYTHON seconded, and embraced the opportunity of complimenting Sir Samuel on his admirable address. As a member of the council he had ever manifested the greatest possible zeal on behalf of the society, and he was sure it would be impossible to find a more enthusiastic President.

The motion was carried unanimously, and Sir SAMUEL, in returning thanks, said the work was one in which he felt the greatest interest. The society had a large field before it, especially in regard to Antarctic exploration. He trusted Australia would take the lead in discovering that unknown region of the world.

On the motion of the Hon. R. A. TARBTON, seconded by the Hon. S. TOMKINSON, Sir Thos. Elder, G.C.M.G., was elected vice-president of the society. Mr. T. Gill was re-elected hon. treasurer, and Messrs. J. W. Jones and A. T. Magarey hon. secretaries.

Sir Wm. MILNE moved the appointment of the Hon. Dr. Campbell, Mr. C. Todd, C.M.G., and Mr. S. Newland, as members of the council. Mr. EVERARD seconded, and the motion was carried.

It was also resolved—"That with a view of extending the usefulness and popularity of the Royal Geographical Society of Australasia, South Australian branch, committees of five be appointed on the following sections :—1, Geographical, including exploration ; 2, Historical and Ethnological ; 3, Geological ; 4, Botanical and Zoological ; 5, Commercial and Educational ; 6, Meteorological."

Votes of thanks to the President, the auditors, and the press for past services, concluded the proceedings.

SECOND INTERPROVINCIAL GEOGRAPHICAL CONFERENCE.

(Held at the Rooms of the South Australian Branch of the Royal Geographical Society of Australasia, Adelaide, September 7th, 1887.)

At the invitation of the Council of the South Australian Branch of the Society, the Conference met at the society's rooms, Grenfell-street, Adelaide.

The President, Sir Samuel Davenport, K.C.M.G., F.R.G.S., occupied the chair.

There were present—Sir John Hay and Professor Stuart (New South Wales), Messrs. A. C. Macdonald, F.R.G.S., and George Gordon, C.E. (Victoria), the Hon. Sir Thomas Elder, G.C.M.G., F.R.G.S., the Hon. Dr. Allan Campbell, M.L.C., the Hon. R. A. Tarlton, M.L.C., Messrs. Krichauff, M.P., W. Everard, Thos. Gill, R. K. Thomas, W. B. Wilkinson, F.R.G.S., and A. T. Magarey and J. W. Jones, hon. secretaries (South Australian Branch).

The PRESIDENT said the South Australian Branch of the Society could congratulate itself upon having called together the second Intercolonial Conference; no doubt they would like to have seen present Sir Edward Strickland and Baron von Mueller. As regarded the first matter for consideration, namely, that of a federal constitution, the committee had decided in September, 1885, that some rules should be adopted common to all Branches, the better to regulate enterprise in geographical researches outside of themselves. The Australian colonies in particular should not neglect such work as the projected Antarctic exploration. The committee had reported favorably to concurrent action on the part of the four Branch Societies in that matter, but no action had been taken beyond laying the subject on the table. He had no doubt, when the expediency of exploring the Southern Seas was further considered, that they would see some fruit forthwith, and that both the scientific and commercial interests of the colonies would be materially enhanced.

Mr. A. C. MACDONALD (hon. secretary of the Victorian Branch) thanked the Council of the South Australian Branch for the invitation, and apologised for the absence of Captain Pascoe (chairman of the Antarctic Exploration Committee) and the President of the Victorian Branch (Baron Sir F. von Mueller).

FEDERAL CONSTITUTION.

Mr. MACDONALD said there was no doubt that a federal constitution for the Royal Geographical Society of Australasia was a

desirable thing. The society should first be incorporated, and then rules and regulations to suit each Branch could be framed. The question would then crop up whether the four branches would not become distinct associations? He did not see how the society could be incorporated without having a common seal, and then each would be distinct. He saw no objection to each Branch calling itself a society and adopting the names of their respective colonies, such as the South Australian Society, the Victorian Society, and so on. There were three distinct societies in France, all working independently of each other, and he thought that would eventually be the case in Australasia. The question of members designating themselves F.R.G.S.A., or M.R.G.S.A., was one which should be dealt with in discussing the question of incorporation.

Mr. W. B. WILKINSON, F.R.G.S., thought there should be one Geographical Society of Australasia, as they would be much more useful if they acted under a common seal and charter. He moved "That, in the opinion of this meeting, it is desirable that a sub-committee of members of each of the Branches of the Royal Geographical Society of Australasia be elected by their respective councils to confer on the subject of a federated constitution, in order that some definite scheme may be developed that may be placed before the members of an interprovincial conference to be called in 1888, in Melbourne."

The Hon. R. A. TABLTON, M.L.C., in seconding the motion, remarked that he thought that united the society would become much stronger, and its public usefulness be materially increased.

Mr. GEO. GORDON, C.E., expressed the opinion that it would be better to be united in one society than to be broken up into four associations, provided each Branch was allowed to carry on its work and have control of its finances.

Mr. THOS. GILL, in supporting the motion, said that in September, 1888, a sub-committee of the South Australian Branch had reported on a federal constitution. The second rule of the draft suggested by the sub-committee included historical, and object 2 referred to the collection and preservation of ethnological and historical records of colonial interest, and it would be a good thing if all the men who had been conspicuous in the government or development of the colonies could be induced to put their experiences on record. Regarding ethnological records the S.A. Branch ought specially to obtain all information possible respecting the aborigines. There was only one man of the Adelaide tribe of blacks now alive. Sub-committees should be appointed in each of the colonies to gather particulars about the natives, and the Government should be asked to allow the Protectors of Aborigines to assist them in gaining information.

The motion was carried.

EXPLORATIONS IN AUSTRALIA.

MR. GEO. GORDON, C.E. (Victorian delegate), said as to the historical records of the colonies, there was a great deal of unrecorded information available. There were many old settlers who had vivid recollections of the colonies in the early days, and the Society should get them to write down their reminiscences of the physical features of the country in those times. It was only from the old settlers that such records could be got, and if nothing were done soon, it would be too late. The principal unexplored parts of Australia were in the Northern Territory, North-West Australia, and Gippsland, in Victoria. The two first were the chief fields, and ought to be common hunting grounds for all the branches, each one being allotted a portion to explore. It was of great importance to know whether these lands were agricultural, pastoral, or mineral. Of course, money would be required, and the society must make efforts to increase its membership as much as possible, because it was from their own resources that the explorations would have to be made. They could not expect much from the Government, and if every branch had among its members such men as Sir Thomas Elder they would not need to go to the Government for aid. Valuable information could be obtained from the first trial surveys of railways in Queensland and Western Australia, and from the journals of the engineers who made the trial surveys.

MR. MACDONALD said the exploration of Central Australia would be taken up by Victoria. Baron Von Mueller and others had argued that the present time being the jubilee and centenary year was an appropriate one for doing something to explore the blanks in the map of Australia. On returning to Melbourne he would cause a circular to be issued to the wealthy classes of the colonies, appealing for money towards a fund to be called the "The Central Australian Exploration Fund." Every subscriber to the fund of ten guineas and upwards would be enrolled as life members of the society, and those contributing less than that sum would be enrolled for as many years as they gave guineas. It was intended to send out an expedition, and Mr. Ernest Giles had offered his services as leader gratuitously. A light party could be equipped for about £1,000, and the society might ask the Crown Lands Department of South Australia to purchase from Mr. Giles the sketch maps of the country he explores. South Australia, he believed, had a great future before her in her mines. Victoria did not want all the glory of the projected expedition, and would be content with the second place, namely. after South Australia. It was almost a disgrace that there was so much unexplored country in Australia. There must be a large drainage into Lake Amadeus, and if that was so, there must necessarily be a large area of well-watered country awaiting settlement. If the S.A.

Branch would take up the work, the Victorian Branch of the Society would contribute all the funds it could towards the undertaking. Professor Kernot, President of the Royal Society of Victoria, has already promised to subscribe £30* to the fund, and several other members of the Victorian Branch had promised liberal subscriptions in aid of the project.

Sir THOMAS ELDER, G.C.M.G., said he would gladly assist the expedition. There was a large portion of the interior awaiting development which should be looked into if, as Mr. Macdonald had stated, the cost would be only £1,000 or so.

The Honorable Dr. CAMPBELL, M.L.C., said the evidence given before the Transcontinental Railway Commission showed how much remained to be known of the interior of the continent. There was a thin line across Australia which was tolerably well known, but otherwise it was almost a dark continent. They wanted to know in a general way what the country was like from year to year, and not what it was at one particular period, or under one particular condition.

Mr. KRICHAUFF hoped that Mr. Giles, or someone equally qualified, would successfully carry out the expedition.

Mr. MACDONALD stated Victoria would carry out the scheme if South Australia did not, and he believed that one-half at least of the necessary funds could be procured in Victoria. South Australia ought to take the lead in the matter, as it was their duty. It was proposed to depart from the usual lines and send a mineralogist and geologist with the expedition, as minerals were of as much value to a colony as pastoral country. He proposed—
“That it be specially urged that the Government provide a
“qualified geologist and mineralogist to accompany the proposed
“expedition.”

The Honorable Mr. TARTON, M.L.C., supported the idea of sending a geologist. The recent discovery of precious stones pointed to the probability of there being untold wealth lying hidden in the interior. Water conservation would conduce to pastoral settlement, and there was no doubt the central basin of Australia contained an immense storage, which would support a large population. Regarding the exploring party, as Victoria had decided upon it, they should take the initiative and invite the co-operation of South Australia.

Sir THOMAS ELDER thought Victoria should be asked to take the lead.

The motion was carried.

Mr. J. W. JONES proposed—“That it is desirable that all the
“Branches of the Royal Geographical Society of Australasia unite
“in securing the due exploration of the present unknown portions
“of the interior of Australia.”

* Subsequently increased to £50

Sir THOMAS ELDER, in seconding the motion, said he had sent out three expeditions, but the leaders were compelled to return on account of experiencing difficulties unthought of. Mr. Ernest Giles was experienced, and no doubt he would succeed.

Mr. TARTLTON supported the motion, and said the Victorian Branch by its action had obliterated provincial distinctions.

The motion was carried.

ANTARCTIC EXPLORATION.

Mr. MACDONALD said the press of South Australia had rendered the society great service, and he hoped it would support the Antarctic exploration scheme. He had that morning received the following telegram from Baron von Mueller :—

Greeting to all. Telegram from Agent-General to Premier, Victoria, reads —“British Ministry will consider proposal for aiding Antarctic exploration. Discussion at Manchester now proceeding. Sir Allen Young hopes to be out this season. Get Conference to support this important matter.”

The British Government had been asked to give £5,000 towards sending an expedition to the Southern Ocean, and the colonies would raise a similar amount. It was expected that Sir Allen Young, who had promised to give £2,000 towards the expedition, would lead it next season. He felt certain the Victorian Government would vote the amount asked for. The region was swarming with whales in some parts. The volcanoes which existed there probably accounted for the seas being navigable, as the water was warmer, and that would also account for the even temperature.

Mr. KRICHAUFF said not only science, but commerce would also be benefited by exploring the Antarctic seas. The society should endeavor to call attention to the advantages of the whale fisheries, as hardly anything had been done in that direction since the return of Sir James Ross. Regarding the mercantile advantages of investigating those seas, Sir James Ross recorded the large number of whales he had met with of the sperm and hunchback species. Our ports being so near would derive considerable advantage from the whale fisheries. Steam vessels would be most serviceable, as there were embarrassing calms which would greatly retard sailing vessels. He proposed—“That a telegram be forwarded to the British Association now sitting at Manchester urging them to support the appeal of the colonies to the Chancellor of the Exchequer for a grant in aid of Antarctic exploration.”

Mr. MACDONALD seconded the motion, which was carried.

EXPLORATIONS IN NEW GUINEA.

Mr. MACDONALD stated that an expedition under Mr. Cuthbertson was now out in New Guinea, and he thought Mr. Cuthbertson would succeed in his object. Mr. Cuthbertson's expedition was a

purely geographical one, and would cost the Victorian Branch about £900. The Victorian Government had voted £1,000 to the Victorian Branch of the Society for exploration purposes. Mr. Cuthberton's despatches would be printed as soon as possible after coming to hand, and sent to all the branches, and the Victorian Branch would be glad to share any collections the expedition might bring back. Mr. Bevan, a member of the Royal Geographical Society of London, had just returned from New Guinea, and he was now in Sydney organising another expedition, towards which he was getting very cordial support. He could not say what was being done on the German side. The steamer *Ottillie* had ascended the River Empress Augusta for over 350 miles, and it was proved that the river was navigable for about 300 miles.

AUSTRALIAN NOMENCLATURE.

Archdeacon FARR said there were a great number of places, the history of the names of which should be preserved. Waterloo Bay in the west, derived its name from a massacre of blacks which occurred there, the whites having driven a number of blacks over the cliffs into the sea. Gulnare Plains, in the north, derived its name from the fact that a dog, whilst wounded in hunting kangaroos, was carried by its owner across his saddle, Byron's well-known poem suggesting the name. Mount Bryan was named after a young man who was out with Governor Gawler, and who entirely disappeared. Mount Barker was named after Captain Barker, who was killed by natives at the Murray mouth. He proposed—"That the mover, "and Mr. Jones, and Mr. Gill, be requested to act as a sub-committee to collect information respecting the nomenclature "and early history of places in South Australia, and that in the "future nomenclature of localities it is most desirable to retain "euphonious native names, and that the other Branches of the "Royal Geographical Society of Australasia be requested to form "similar committees."

Mr. JONES seconded the motion. He thought that the society might urge upon the Government and others who had power to name places to retain native names. There was a tendency on the part of explorers to place the names of their friends on the map, but wherever practicable the euphonious native names should be given in preference to others.

Mr. GILL mentioned that the name of Uraidla was originally spelt Yurreidla, a native name meaning two mounts.

Mr. W. EVERARD said in several cases the native names of northern townships had been altered, they now bearing the names of colonists.

Mr. MACDONALD said that at the first Geographical Conference held in Melbourne in 1884, a resolution in favor of abolishing ambiguous names, and substituting native names was carried, and

an opinion was expressed that the Surveyors-General of the colonies should set to work and abolish the objectionable names such as Dead Horse Gullies, Chinaman's Flats, and Frying-pan Creeks. Another matter for complaint was, that explorers had an embarrassing way of re-naming the physical features of a country, entirely ignoring the names given by previous discoverers.

Archdeacon Farr's proposition was carried.

Mr. W. B. WILKINSON suggested the propriety of the society considering a new name for this colony. If the society took it up now the people would consider it, and something might be done later on. Alexandrina, the name of the future Queen, Australina, or Australana, might be adopted.

Sir SAMUEL DAVENPORT thought the proposal required a deal of reflection.

GENERAL TOPICS.

A discussion took place on the exchange of the annual reports of the branches, one with another, as it was thought such a course would tend to increase the interest in the proceedings of the society.

Mr. MACDONALD suggested that the number of copies exchanged should be 100 with each branch, and if more were wanted the volumes could be supplied at cost price. The meeting fell in with this idea.

The PRESIDENT thanked the intercolonial delegates for their attendance, and SIR JOHN HAY, on behalf of N. S. Wales, and Mr. A. C. MACDONALD, on behalf of the Victorian delegates, returned thanks.

A vote of thanks to the Press, proposed by Professor Stuart, closed the proceedings.

EXPLORATIONS
IN THE
NORTHERN TERRITORY
OF
SOUTH AUSTRALIA.

~~~~~  
*By David Lindsay, Esq. (read June 29th, 1887).*  
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Mr. President, Your Excellency, Ladies and Gentlemen—As you look at this map of Central Australia, showing its immense tract of millions of acres of hills and valleys, lowlands and uplands, most of which is still in its primitive condition, occupied only by its aboriginal inhabitants and its indigenous fauna and flora, it needs no mind reader to interpret the uppermost thoughts of your minds, or to anticipate the questions you would ask an explorer who has examined it.

If you are a geographer with a knowledge of the history of early Australian exploration, the first question on your lips will be—what of the brave but unfortunate Leichardt? Can you tell us how and where he died, or is there the faintest hope that any of the members of his party still survive?

Then you will ask about the aboriginal people, if any prehistoric records exist; and you will want a description of the striking geographical features of the country. If moved by an enterprising spirit for pioneer settlement, your questions will be—what of its lands, its waters, its woods, its grasses?

If a Minister of the Crown or a member of the Legislature—and particularly if you are alive to your responsibilities—you will be desirous of ascertaining before the session of your Parliament is far advanced what should be done for the development of this territory, and possibly you may not be above gleaning a few grains of information, even from me!

Do you not want to know of its stock-carrying capabilities, of its fitness for cultivation, of its mineral deposits, and if you will be justified in connecting it by railway with the world's ocean highways in the North and South.

The very brief and very plain unvarnished tale which I have to unfold to-night will, I hope, help you in some measure to satisfy yourselves on these points.

You may not all know that my last expedition was a private one, fitted out at my own expense, and that all the possible risk and loss so often attendant upon exploration would fall on me. Some public interest was attached to my work, as the South Aus-

tralian branch of the Royal Geographical Society and the Government had decided to bear the estimated expenses consequent upon my having offered to take a botanical collector.

Sir Thos. Elder, in that generous spirit towards explorers which always characterizes him, came forward with the offer of two camels for the use of the collector; thus, I was enabled to accept the services of a gentleman, Lieutenant Dittrich, who had volunteered to accompany me. His attachment to the party proved to be a serious mistake, because he had no knowledge of the duties he had undertaken, and lacked that enthusiasm which is so necessary for the successful pursuit of any scientific object. His collection of plants was poor and badly preserved, and the photographs of natives and interesting natural scenery which he had taken right across Australia proved, on being developed in Adelaide, to be quite worthless, the majority of the plates being blanks.

Before crossing the 26th parallel into the Northern Territory, I spent some weeks in tracing the course of the Finke river to its debouchement, as a great deal of interest in the question had been excited by the fact that the natives of the Macumba had pointed to the north-eastward as the locality of what was supposed to be a very large water, called by them "Tirreawah."

Following down the Finke from a waterhole named Muckarinna, we traversed a well-grassed valley several miles wide, which is subject to inundation. This is clearly shown by the dense growth of box, gum, and other trees, and also herbs and fodder bushes growing to a height of 5ft. to 10ft.

This valley in ordinary seasons may be considered the end of the Finke, as in a few miles the sandhills closed right in; but in irregular seasons, when the floods are unusually high, the water flows on down the hollows between the sandhills for about ten miles. Here and there a solitary boxtree was undoubted evidence that the water did pass through these hollows, when it emerges in two places, distant one from the other about six miles, on to a very good well-grassed plain.

Here Spring Creek, which drains the high lands surrounding Dalhousie Springs, thirty miles distant, contributes its waters, which, again entering the sandhills, splits up into many boxtree watercourses, to again, in about twenty-five miles, after forming some fine waterholes, flood out on to splendid plains, clothed with grasses, saltbush, and other good stock bushes. These plains lead south-easterly, and it soon became evident to us that the Macumba flood waters came up this far, and, after inundating some 200 square miles, flow on to Lake Eyre.

But what of the large Tirreawah lake that the natives had led so many to expect on the Finke, and on which it was supposed by some that Leichardt and his party met their fate?

Lake there certainly was none, and, after careful inquiry of the natives, I came to the conclusion that Tirreawah is an obso-

lete word, the precise meaning of which has been lost, but probably meant a very great distance. So that, when the natives told Mr. Jarvis, as publicly reported some time ago, that a party of white men had been killed long time ago on "Tirreawah," I think they were only repeating something they had heard from distant tribes.

The natives have recognised tribal messengers, who barter their respective commodities, such as pitchuri, weapons, red and white ochre, &c., and who convey many items of information.

I may say here that, to my great disappointment, I failed throughout my trip to discover a single link in the chain of mystery which surrounds the fate of the justly-honored Leichardt; but the natives on the Macumba, pointing north-easterly, said "white men killed on Tirreawah." A native from the country east of Alice Springs says that the natives farther on tell of white men dying a long time ago, and I was told that a native woman on Idumea Station, pointing westward, said "that whites died that way long ago." Now these three directions cut, and in that locality something may be found, although Mr. A. C. Gregory, the well-known Queensland explorer, is quite confident that the camp found by him on the Elsey Creek was Leichardt's. If this be so, then, if any traces are ever found, it will be in our north-west country.

It cannot be possible that any of the party are still living, and, as years roll on, the less chance will there be of ever finding any traces of that lost explorer.

We returned to Dalhousie, and a week later two of us, guided by a black boy, set out for a water called Murraburt, which had been much talked of for a year or two, and which was supposed to be ninety miles distant. Starting from Etelkertinna, a native well, which on my previous journey I had discovered in the Finke, we, directed by our native boy Paddy, travelled easterly for sixty miles over a perfect sea of sandhills, which all lay at very regular distances apart, with a north-north-west and south-south-easterly direction, very sparsely clothed with a few mulga and other bushes, but a good deal of spinifex. Many of these hills were 70ft. high. All slope up on the south-western side, and are very steep, nearly perpendicular on the eastern side, and as the foot of one touches the foot of the next, the travelling, with the sun at 114° to 125° in the shade, was both wearisome and difficult.

Our guide once was in doubt about the direction, and on being asked said, "Me been lose him; you straight walk." On we went for a few miles, when Paddy's joyous voice was heard crying out, "All right; me been find him. Long time me been sleep long 'this one bush long my mother when me picaninny." Looking carefully at this bush and the surroundings we were forced to admit that, to us, there was no difference to any one of the many bushes we had passed; but he was right, for he changed his direction slightly and led on with the greatest confidence.

Just before dark on the second day we ascended a big sandhill, and there beneath us lay a plain some two or three miles wide, stretching away on either hand as far as we could see, looking beautiful as the rays of the setting sun shone on the different colored foliage of the bluebush, cotton-bush, saltbush, and acacias which clothed this plain.

Just at our feet, too, was "Murraburt," indeed a disappointment, for it was but a native well, difficult to get at, the hole being perpendicular 12ft. and then a drive of 8ft., so small that I had to undress before I could enter. The water was bubbling slowly up, and slightly brackish. I believe it to be a spring, and that a large supply of water could be obtained. There was no special object to guide a white man, not a bush big enough to cut one's initials on.

Our guide led us to eight other native wells, over sandhills and many fine plains. All these wells had good water, and some, apparently, a large supply. Of course it is impossible to judge of the supply in a blackfellow's well, for so long as there is enough water for them to put their mouth to they are content. This is an excellent sheep country, so far as the vegetation is concerned. To the south of us we saw salt lakes glittering in the sunlight. Shortly after leaving Murraburt we met with the cork tree, which became more frequent for the next forty miles. It is the largest tree in this country, growing 12ft. high, with a diameter of 9in. Then it disappeared and was replaced with a few wattle trees or bushes and the broad leaved gidyea and mulga, which cover considerable areas stretching away many miles south and north.

Numerous natives live in this region, as shown by the number of mia-mias at the wells. One mia-mia was seen large enough to accommodate thirty or forty natives. At Kilpetha, a few miles before we enter Queensland, there were forty natives, speaking a different language to the Macumbo and Finke tribe. Greatly astonished at seeing us coming from the west, they were much afraid of us at first. However, on finding that we were budgaree whitefellows, they were very communicative, and as inquisitive, as is usual with the natives.

Time will only permit a few general remarks about the natives. From the Macumba across the Finke through the MacDonnell Ranges and on the Marshall, the language, manners, customs, and tribal division are the same or nearly so.

Four classes or divisions regulate the intersexual relations. These classes are Piltara, Gomorra, Panunga, and Parola. A Piltara man can only marry a Gomorra, a Panunga man can only marry a Parola. Bigamy, and in some cases, polygamy is practised.

Physically the natives are small but well built.

The corroborees are interesting studies—some are cruel and painful, while others are very vile and calculated to arouse the baser passions. As in other parts of Australia the great remedy practised by the Ungelara or Doctor is sucking, whereby he pretends to pro-

duce from the bad eyes or rheumatic leg a bit of stone, charcoal, or other hard substance, when the patient is expected to recover. If the sick one does not recover then some enemy has burnt a bone, and he must die unless he manages to kill his enemy.

Almost every living thing is eaten. The seeds of various grasses and plants and trees are collected and ground into powder, out of which a kind of bread is made. Box trees, acacias, munyeroo, and nardoo yield large quantities of seed. Heaps of dry grass which have been threshed for the seed are often seen in the Finke. Roots, fruit, and berries are eaten. When the rats are numerous, as they were last year, the natives become very fat.

We went fifty-five miles into the sandy desert, over sandhills and spinifex with no camel feed, but were compelled to return owing to one camel knocking up, whilst another one was also showing much fatigue.

We returned to the Finke and followed it up for eight days, through a very good pastoral country, splendid grasses, herbs, and bushes, and fine timber, water in claypans and native wells. At times the vegetation was over our heads as we sat upon the camels' backs. The air was alive with the music of many birds, magpies, parrots of various sorts, pigeons, doves, diamond sparrows, and many others.

Near a waterhole, where we filled our water vessels for another journey across unknown country, stood a high hill, from the top of which we obtained, with the aid of powerful glasses, a very fine view of that wonderful natural monument, Chambers' Pillar, first discovered in 1860 by John McDouall Stuart, whose very name stirs the hearts of South Australians, and the record of whose bravery, determination, and hardship must thrill the reader with admiration for the boundless energy which carried our "Premier explorer" and his gallant band of followers right across our continent in '60 and '61, in the face of such difficulties and dangers that none but those who have made long journeys with horses in dry countries can imagine or understand. Under what different conditions the explorer of the present day travels. Camels, that in the hottest weather and under the greatest difficulties can be relied upon to travel at least eight days without water, are substituted for horses. We have the telegraph line across the centre of Australia, on Stuart's track to fall back upon, and settlements on the north coast.

Thirty miles of the journey from the Finke to the Lower Todd was over low irregular sandhills, clothed with spinifex, desert oak, parrakeelya, and low bushes, with an occasional low stony hill; we then entered a very fine pastoral country, mulga and good grasses, high bold hills and ranges; passing through these we emerged upon some flooded box country, with a waterless creek crossing our course. Some isolated hills stood 350 feet above the plain; from the top of one I had an extensive view over broken ranges to the north and west, and to the east and south sandhills and a few table-topped

hills showing faintly on the eastern horizon some forty or fifty miles distant.

An accommodating gap through a very precipitous range, whose summit towered by aneroid measurement 700ft. above us, afforded an easy passage into a mulga-covered and well-grassed plain, with a very high range to the north. All these ranges run east and west; on the face of one eleven distinct walls of perpendicular rock rendered the ascent difficult, if not impossible, the height being 1,100ft.

Where we struck the Todd it was a large dry sandy channel, with fine gum trees in it and on its banks. This creek loses itself in the sandhills as in my journey easterly from Dalhousie after crossing the Finke, for a distance, as the crow flies, of 130 or 140 miles, there is not even a watercourse of the smallest size, showing that the Todd river waters are simply absorbed by the great sandy waste lying to the south-east.

We were travelling in terribly hot weather, the thermometer reaching 110° to 120° in the shade; and on the sixth day some of our camels were getting sluggish, notably the two that had compelled us to return on our former attempt.

We formed a depôt of our goods and went up the Todd, and then the Giles, hoping to find water. We travelled all night with Joorak suffering from sunstroke, and camped at daylight. The creek was horribly dry, with no signs of water, as I rode away to look for water after having made a signal smoke on top of a hill to attract any natives who might be in the vicinity.

I followed up the valley for three miles when a very dry stony creek came in from the left, certainly not an attractive looking creek for water, but that consciousness which so often at times of our sorest need seems to compel us to do the right thing or go the right way, guided my steps over these loose stones and boulders, through a gap in the range bordering the valley, and immediately I came upon a pad with fresh tracks of dingoes, emus, and kangaroos, which soon led me to a clayhole in which was a little yellowish water.

Some natives came in that evening, having been attracted by my smoke, and after a few days led us to a fine spring in a gorge beneath a frowning mountain 700ft. high. From the top of this rocky mountain, which was so precipitous that I could have thrown a stone right across to the hill under which our camp was pitched, an extensive view was obtained over a rocky, broken, mountainous country. About 300ft. up the face of this mountain is a large rock archway about 40ft. high. Many fantastically shaped rocks and caves are met with in these sandstone ranges.

Journeying onwards we passed through sandstone, quartz, limestone, gneiss, and granite, with some good rock waterholes. Fine shady gum trees, good bushes of many varieties, grasses, and

saltbush showed this to be a very fair pastoral country. Animal and bird life was very scarce. A few grey kangaroos and euro hopping up the hills, and an occasional dingo and emu, were all we saw. This country is, by aneroid measurement, about 3,000ft. above sea level.

After three days travelling we found a large gum creek coming from the westward; it is evidently the Hale River of Mr. Winnecke, and is another of those sandy rivers peculiar to Central Australia. We followed this creek easterly for eight miles through a very good pastoral country, when it junctioned with a larger creek coming from the north-west, and which I named "The Elder," in honor of Sir Thos. Elder, G.C.M.G., &c., &c., whose very great interest in exploration has often been shown by the assistance he has given to various explorers. Still travelling eastward we found water in the sand in a few places, and tin in a granite hill, also a bar of granite completely studded with garnets crossing the creek. Just above this point, when scratching for water under a rocky cliff, I found a quantity of beautiful gem sand, containing many garnets and some red stones of great brilliancy, which, after careful examination, I believe to be rubies; calling the attention of the members of my party to this discovery, which may prove of great importance to Central Australia, we passed on to find a large deposit of these beautiful stones at the entrance to and in a wild and romantic gorge, which I named "Glen Annie," after my wife. This glen, which is five miles through in a southerly direction, and in parts only one chain wide, with perpendicular cliffs towering up 300 to 500 feet high, is impassable for loaded camels. In it there are some permanent waterholes and springs. From the top of a high hill I could trace with my glasses a dark-green line of gum trees, marking the course of a creek nearly due east for thirty or forty miles, having a fine rugged range on its south side, and winding through apparently a very good country. This creek will also add its water to the sandy desert, or it may, after joining another large creek met with later on, lead into the Hay.

The course of the Elder could not be traced, but natives told me that its course is southerly, cutting through all the ranges until it joins the Todd. The main rock is sandstone, but it has dykes of limestone running through it with an occasional outcrop of ironstone. Mount Coghlan, named after the late Rev. F. Coghlan, a conical peak guarding the entrance to Glen Annie, is capped with ironstone.

We had now to face a terribly rough bit of country. A jumbled mass of rocky hills with the watercourses full of boulders and tea trees, much of the country being covered with mulga. At one point I was within half a mile of a plain, and had to return on my track for some miles. The promised land—plains—stretching away in the direction I wished to travel, lay some 400ft. beneath me. By leading my camel, with great difficulty I descended to the plain,

and going across some three miles to a bold, black-looking, garnet-studded granite range 700ft. high, found a gum creek, which formed a passable route for the caravan. Palms and bread fruit were found in this range; passing on we found a very fine pastoral country. Granite hills studded a good valley through which wound many gum creeks, whose green vegetation held out the promise of water at shallow depths. Then entering a rough but interesting country, bold, broken granite ranges, with numerous peaks and fantastic-shaped tops, good grasses and bushes in abundance. Some of the hills are clad with palms, some with pines and gum trees, whilst others are but a mass of rock destitute of any vegetation.

Quartz was met with, and as we neared the northern and eastern extremity of the range, the hills became very rough, composed of gneiss, quartzite, and sandstone.

On reaching the Plenty Wells, to which we had turned for water, we were much disappointed to find that there was no water to be had anywhere about, the whole country appearing to be suffering from a drought.

Our camels not having had a drink for a week, and being doubtful from the state of the country as to the existence of water at a spot now some eighty-four miles distant, marked on the map as permanent water, I decided to leave our goods in charge of two men and go back into the ranges in search of water.

As we were travelling back towards the range I was again impelled, by that unnamed consciousness previously mentioned, to go to a rock some three miles off our course, where I found a fine looking rockhole, unfortunately quite full of sand and stones. With my hands I scooped out about two feet deep, when, just as my finger nails broke on the rock, a little water showed. Firing two shots—our usual signal—the party came across, and we immediately began clearing out the hole, filling up our water vessels and watering the camels, until, at 10 p.m., having worked eight hours, we had removed ten tons of earth and stone and taken out 250 gallons of water, which was just the quantity required. We left no water in the hole.

Going east for eighty-four miles along a great sandy river, the Marshall, to a small waterhole, over for the most part a very good pastoral country, which stretched away for a considerable distance north and south. In parts the country was most beautiful, having shady trees scattered about and producing splendid grasses. The sandy country clothed with mallee and poor scrub came in occasionally.

At this hole we found thirty-six natives, who were timid and spoke no English.

Every mile as we travelled north-easterly seemed to improve, until surrounding the Tarlton Range, which is composed of low stony hills beautifully grassed, we found a really excellent pastoral country with the Mitchell and other good grasses. No permanent

waters exist, but some distance to the north water can be had in large quantities by sinking only 5ft. This water, I believe, is the underground channel of one of those great sandy rivers which drains a great area of the MacDonnell Ranges. From here to Lake Nash we passed over a splendid pastoral country, parts of it really magnificent, undulating and clothed with luxuriant grasses, herbs, creepers, and bushes, acacias, box, and other trees; limestone and a coarse yellow sandstone, with a few small waterholes, but many places eminently adapted for conserving water. Leaving a native well at which a number of natives were camped, we passed through low hills clothed with mulga and gidyea, the broken flint-strewn surface causing considerable inconvenience and suffering to our camels. We then entered upon the extensive Mitchell grass plains and downs which, relieved by an occasional clump of gidyea, stretched away as far as the eye could see, and continuing with us until a broken crystalline limestone country bordering the valley of the Herbert was crossed, and we found ourselves on that river about nine miles from Lake Nash station, having safely accomplished our explorations. The only misfortune we had to record was the accidental death of one of the riding camels.

The aborigines had given us no trouble—indeed there seemed to be but few in the country, we having seen only about 100, although old camps on all the large creeks were very numerous. Men and women seemed to be in about equal proportions, and a fair number of children were seen.

No drawings on the rocks were found, although they are known to be in many places.

There are no great forests, but its hundreds of creeks have very fine gum trees, and many varieties of eucalypti and pines are scattered over the country.

Only in the ranges do we find permanent surface supplies of water, but much of the country having a very fair rainfall can be made available by conserving water in dams and reservoirs. And no doubt large underground supplies exist which will be tapped by wells and the boring rod or diamond drill.

Its grasses are good, the chief being barley, silver, kangaroo, and Mitchell.

Kangaroos, many varieties of rats, bandicoots, emus, dingoes, quail, pigeons, cockatoos, and parrots, were more or less plentiful in parts.

I found tin, silver, and copper. Gold will certainly be also found.

The whole of the country passed over from the Finke is capable of carrying stock.

The country between Lake Nash and Powell's Creek, on which we spent six months, is an elevated tableland, bordered on the south by a sandy country, and on the north reaching up to the coast range, on which cattle and sheep stations are being formed,

it is watered by many creeks and rivers and embraces an area of about 25,000 square miles of magnificent downs and plains well and densely clothed with Mitchell, Flinders (red), and other well-known grasses, besides bluebush and many other good stock bushes, and it has an average annual rainfall of about eighteen or twenty inches, I am inclined to the belief that this is destined to become ere many years have elapsed one of the finest wool producing districts in Australia.

The conserving of water by dams and reservoirs from the nature of the soil and the contour of the country will be easy and comparatively inexpensive. Good water will also be obtained by sinking over the whole tableland.

There is an important division of the waters just within our boundaries. The Herbert river whose waters flow south to the Diamantina. The Playford and Buchanan flows westerly, and are met by many other creeks which all lose their waters on vast polygonum and bluebush flats east of the Ashburton Ranges, where there is a large basin having a considerable drainage into it from all sides, and it appears to me at least probable that this water will be found to burst out in springs in the unexplored country west of the telegraph line.

Limestone is cropping up over these downs, sandstone, and a little ironstone are met with, gypsum also. Timber is rather scarce though sufficient for all station purposes, being limited to the water courses and patches of forest country, which by some explorers have very erroneously been styled desert country.

The natives over this country seem to be divided into about six tribes, speaking different dialects, though their manners, customs, and superstitions appear the same.

The Warramunga tribe, of which Cubadgee is a member, whose country lies between Tennant's Creek and Powell's Creek, and a considerable distance east and west of the line, seems to have ten families or divisions regulating the intersexual relations. One man is chief of the tribe, at whose death the position devolves on the eldest son, unless he be not of age, when the brother of the deceased chief acts as regent.

The Umbia tribe about Cresswell Creek have twelve divisions. The Bing Binga tribe on the McArthur river have the same, and the names of these divisions are the same.

The tableland and coastal natives are fine well-built fellows, many of them over six feet in height.

The tablelanders have so far given the settlers no trouble, but the coast natives are bloodthirsty and treacherous, and much given to killing the horses and cattle.

Descending from the tableland we entered the South Australian Valley, so named by the discoverer, Mr. Favenc, than which it would be difficult to find a prettier or better bit of country anywhere—an undulating country of the finest soil, clothed with all

North Australia's best grasses and herbs, hemmed in by a bold and broken mountainous country through which flow streams of water.

After we left this valley the country became less rich in its grasses, though still very good, and permanently watered by springs in low hills of crystalline limestone. The vegetation becomes more tropical. Cotton trees, with their large yellow flower and green pods on leafless branches, being a notable feature.

Again the country becomes more level with spurs of rocky but well grassed hills jutting out into the valley of the McArthur river down which we were travelling. Sandstone and limestone are the principal rocks. A very broken range borders the valley on both sides; very fine timber of many useful varieties abound, and the grasses remain good right through to Borroloola, which is a picturesquely situated township at the head of the salt waters on the McArthur river.

I believe this coastal range will be found to contain gold and other minerals. Limestone is the bedrock in the McArthur river about twelve miles above the township.

By the foregoing you will see that from Lake Nash to Borroloola on the sea coast, and across to the telegraph line we have an immense tract of extremely valuable pastoral country, fairly and well watered, clothed with the best of grasses, and as its soil is of the finest, and its rainfall from 20 inches to 50 or 60 inches it must be also suited for the production of many sub-tropical and tropical products.

ARNHEIM'S LAND EXPLORATIONS IN 1883.

Arnheim's Land is the northern portion of the Northern Territory.

The western portion, on which our settlements are situated, is of course well known, but the central and eastern portion was explored by me for the S. A. Government in 1883, and a few general remarks may be of interest.

A sandstone tableland, rising to a height of at least 1,200ft. above sea-level, lies north and south right across the centre of Arnheim's Land. From this tableland flow out rivers to the north, south, east, and west—the South and East Alligators; the Mary river, which was discovered and travelled down by Stuart—though he mistook it for the Adelaide river—in his memorable journey across the continent in 1860; the Katherine, the sources of which were discovered by one of Australia's earliest and bravest explorers, Dr. Leichardt, in 1845; the Waterhouse and Chambers, which, joining the Roper, help to make that everflowing river one of the finest in Australia. It may be considered the southern boundary of Arnheim Land. Permanent springs in a limestone and basaltic country send forth a large volume of water, which winds its tortuous way through a most magnificent agricultural and

pastoral country, composed of downs and plains densely clothed with most luxuriant grasses and herbs. It is navigable for ninety miles, where a 500-ton vessel can lie in fresh water and discharge its cargo direct on to the banks. The Cadell and Liverpool rivers flowing into the north coast.

The tableland, which is but a narrow belt, has springs right on top of it, and numerous springs give rise to many everflowing creeks which wind their crystal way through deep ravines and gorges on to the valleys and plains lying from 200ft. to 500ft. beneath; when, alternately flowing over pebbly beds and deep still ponds covered with beautiful flowering nymphaea or lilies, they form the rivers which flow through well-grassed country to the sea.

It is evident that these springs and the heavy rains of centuries have denuded the rocks, thus cutting up this central plateau into gorges and ravines, which make it one of the most inaccessible and difficult regions in Australia over which to travel.

We, coming from the eastward, struck the Liverpool river about twenty miles in a direct line from the coast, where the country was very suitable for agriculture. We proceeded to follow up the broad white sandy bed in which was a stream of water not always showing on the surface, through a country over which hills and huge piles of sandstone were scattered, crossing at times good valleys with granite and diorite hills. We at last found ourselves at the foot of a frowning wall of rock 200 or more feet high, and extending as far as we could see many miles on both sides of us, broken by numerous creeks and ravines full of great sandstone boulders. The river came through a gorge with perpendicular walls rising up out of very clear deep water and then flowed over a level rocky shelf worn by the water into hundreds of circular holes, between which with difficulty we led our horses.

Zigzagging up the face of these cliffs we passed through and over places which it would have been impossible to descend.

So frightfully rough and broken was this country that in eight days we only made ten miles, and before we descended into the valley of the Katherine we had lost twelve horses. This mountainous region can scarcely be termed a tableland, but rather a mass of hills of equal height whose flat tops and perpendicular sides are covered with pillars and slabs of sandstone and horizontal stratification cut and worn into the most fantastic shapes, and the ravines filled with great boulders, forming a picturesque and wild scene rarely to be met with in Australia.

The Liverpool river descends through this country in a series of waterfalls. One was 50ft. in height, while at another point we stood upon an overhanging ledge of rock with the water deep and dark 200ft. beneath us, rushing between two perpendicular walls 200ft. apart, and sweeping round a terribly broken cliff whose interstices were filled with beautiful green tropical vegetation; while up the stream we could see seven distinct waterfalls from 5ft. to 50ft. in height.

Dr. Leichardt's description of the tableland where he crossed it much further south is graphic and worth repeating:—"From one of the hills I had a most disheartening, sickly view over a tremendously rocky country. A high land composed of horizontal strata of sandstone seemed to be literally hashed, leaving the remaining blocks in fantastic figures of every shape, and a green vegetation crowding deceitfully within their fissures and gullies and covering half of the difficulties which awaited us in our attempt to travel over it."

The famed geologist, Rev. J. E. Tenison Woods, made an examination of the western portion of Arnheim's Land last year, and has objected to the plateau being called desert sandstone, as, on examination, he found many of the cliffs to be formed of belts of granite at the base. Waterworn quartz conglomerate ferruginous magnesian sandstone—pure white magnesite—in some places a highly ferruginous sandstone horizontally stratified. It would therefore appear, he says, that the so-called desert sandstone is confined to numerous small patches of a newer formation of moderate thickness which does not cover the older rocks to any great extent."

The eastern division of Arnheim's Land has two or three main ranges, whose peaks reach an altitude of about 1,500ft. above sea-level, with many hills and small ranges, making it a mountainous country, in which are found many extensive valleys clothed with all our best grasses and well timbered.

The coast is low, and in many parts covered by a dense low scrub extending back ten miles or more, whilst in many places, as at the bottom of Blue Mud Bay, extensive and magnificently grassed plains run down to the mangroves bordering the coast, and are backed by an exceedingly well grassed open forest country.

Limestone, basalt, sandstone, quartz, ironstone conglomerate, and quartzite. Many important creeks and rivers were found, the principal being the Walker, which, though navigable but a few miles, is a running stream for eighty miles in its course through a very good country. The Goyder, down which I travelled for about eighty miles, is a magnificent stream, running so rapidly that at one place the miniature waves, caused by the rocky bottom, are breaking backwards into foam. It is navigable for twenty or thirty miles, and flows through a magnificent country, plains of alluvial soil stretching away back to the jungle-capped freestone ranges, and covered by a dense growth of grasses; springs and beautiful lagoons, swarming with wildfowl and full of fish, fringed with the most luxuriant tropical vegetation to be seen in the Northern Territory. Jungles of noble Leichardt pines and beautiful fan palms, from 20ft. to 40ft. high, 2ft. to 3ft. diameter, with leaves 7ft. across. This river is destined at some future date to carry a large agricultural population, and will be the most important outlet for Eastern Arnheim's Land. The natives were very numerous and hostile. We suffered considerably from their aggressions, as at

one place they speared four horses, at another drove the horses away for many miles, and a force of about 300 armed men attacked us. Fortunately we drove them off without any injury to ourselves.

Dr. Leichardt, in his journal, speaking of the South Alligator river, says, "here there are more natives to the square mile than in any other part of Australia."

They subsist entirely upon natural products, and wander from place to place, at certain periods of the year, after particular kinds of food in its proper season. Portions of the country are conserved for two or three years to allow the game and reptiles to increase. Then, about August, a tribe will visit the spot, and by setting fire to the grass in patches will find abundance of food. On occasions of this sort I have frequently met a blackfellow with over a dozen snakes around his neck.

Their only shelter or protection from the heavy rains is composed of a few sheets of bark laid upon a low framework of bamboo or some supple jungle plant. Sometimes a breakwind, to keep off the cold south-east wind, is constructed of boughs and bushes. I once met with a solitary mia-mia formed of bamboos thickly thatched with grass, 6ft. high, 10ft. diameter, and with but one entrance, which was so small that I had the greatest difficulty in squeezing through it. This was on a low mound in swampy country, and the natives told me that when occupied, the entrance was stopped up with grass to keep out the mosquitoes. It was only used at the beginning of the wet season when the natives were gathering wild fowl's eggs, and as a stopping-place on the route from one river to another during the wet season.

They have no clothing whatever, but a small piece of bark, about the size of a man's hand, attached to a belt, sometimes worn by the young women, and a pendant of twisted fibre by the young men. Their ornaments are armlets, bracelets, necklaces, and forehead bands, made of grass, and decorated with feathers and kangaroo and alligator's teeth, belts of bark and women's hair, bunches of cockatoo feathers on the head. They paint themselves with various colored clays, have some interesting ceremonies, and are very superstitious. The dead bodies are placed upon a framework of saplings, or up in the branches of a tree, where they are left until the flesh has all disappeared, when the bones are removed and buried in small circular mounds in some retired spot not far from water, or wrapped in folds of paper bark and deposited in clefts of rock high up in the face of a cliff.

Some of the tribes, at the death of a chief, kill his wives and bury them alongside the framework on which his body is placed. Around the woman's grave are placed the implements of the chase, so that she may, in the spirit world, be ready to provide food for her lord when he should call upon her to do so.

Polygamy is practised, and an interesting custom therewith is that the old men have the young women and the young men have

the old women. This is a wise arrangement, as the old of both sexes have young partners to provide them with food.

They are tall, straight, and well formed, straight hair, and scanty whiskers. I have measured some men over 6ft. 3in. high. The women are, when young, quite well formed, and often attractive and good looking, with regular features, fine eyes, and always good teeth. A strong sense of the humorous is often shown in their witty replies and comical sayings.

They are cowardly and treacherous, but can be civilised to a great extent, as is proved by the Port Essington tribe, amongst whom to this day may be seen effects of the teachings of the English soldiers in 1838-49.

Some of the tribes practise circumcision.

A curious legend is told on the north coast, somewhat as follows:—The natives say that at one time the country extended far away towards the equator, connecting with land of the Malays; that a great fire gained possession of the whole country, and then the waters came surging down, putting out this fire, cutting off and washing away a great deal of land. The fire is said to be still burning, that two or three men are told off to keep it alight, as should it by any neglect become extinguished great evil will result. On inquiring along the coast I was always told that this small fire was kept alight by the next tribe. The cliffs on the coast present a red and burnt like appearance.

Some of the tribes have suffered from smallpox, introduced they say by the Malays, who for hundreds of years have frequented our coast for trepang and pearlshell.

Rude drawings of animals, human beings, and weapons, are to be found on the cliffs and in caves.

The transmission of important news is very wonderful. The news of the murder of a white man was conveyed over 200 miles in less than twenty-four hours.

Their weapons are the spear and the tomahawk and the club. They do not use the boomerang. They manufacture very good rope and string out of fibre plants. Baskets are woven so closely as to be watertight. Their canoes are of bark.

And now I might be permitted to, in a few sentences, take a glance right through the Northern Territory.

Our southern boundary is the 26th parallel of south latitude, where the average annual rainfall is 6½in., and between here and latitude 21° 30', a distance of 300 miles, where the rainfall has increased to 15½in., there is a great deal of waste sandy, desert country, into which the backbone of Australia—the MacDonnell Ranges, reaching an altitude of, according to Mr. Winnecke, over 5,000 feet—has pushed its good pastoral country. Numerous permanent springs and underground rivers will enable this centre of Australia to support large herds of cattle and horses; and when the transcontinental railway—which I hope to see pushed across to

Port Darwin—reaches this far, vast flocks of sheep will prove this to be a very valuable district. The climate is almost perfect. Proceeding northwards, the rainfall increases by about 2in. for every 100 miles, until we touch the coast range in about latitude 16° , where the rainfall is 31in.—pre-eminently a pastoral country, but also in many parts suitable for agriculture, with a climate sufficiently cold to successfully produce wool. I therefore hope and expect to see the time when the sheep of the Northern Territory, instead of being counted by tens of thousands, will be counted by millions. As we near the coast the rainfall rapidly increases to considerably over 60in.

Our coast country, with its numerous splendid rivers flowing through immense plains of rich alluvial soil, point to the inevitable conclusion that tropical agriculture will at no distant date be a most important element in our national prosperity; while its known metalliferous fields, said by a competent authority to be of such exceptional richness, together with the new ones which will be found to exist in Arnheim's Land in the eastern coastal ranges and in the central ranges of the continent—gold, silver, copper, and tin have already been discovered in the MacDonnell Ranges—must prove remunerative fields for the investment of capital.

Thus we have a country capable of supporting hundreds of thousands of cattle and horses, and millions of sheep; extensive agricultural areas which will produce sugar, rice, coffee, cotton, and nearly all other tropical and sub-tropical products necessary for our use; and the wonderful mineral wealth of gold, silver, tin, and copper, all combined, will make the somewhat despised Northern Territory of vast importance, and place it in the front rank of the Australian States.

The Adjahdurah Tribe of Aborigines on Yorke's Peninsula: some of their Early Customs and Traditions.

By T. M. SUTTON,

Superintendent Point Pearce Aboriginal Mission Station.

(Read July 29th, 1887.)

It is very difficult to get reliable information as to the past history of the aborigines. The tendency is to mix it up with the semi-civilised life they have led since the Europeans have been here. Many even of the oldest have forgotten all about it. My plan has been to get the first information from two old men or women, then try two more, get their views on the same subject, and submit it all to the old people together and a couple of young men. Some of the latter do not like all the past customs to be known.

The name of the tribe on Yorke's Peninsula is Adjahdurah, or my people. Adjah means my or mine, as adjah-coojmunya my son, adjah lanna my daughter. One individual of the tribe would be called Durah. The general name of a native of any tribe is Nepoh. The tribe was also divided into four local divisions, viz., Koornarra (north), Winderah (east), Dilpah (south), Warree (west). Each local division had its own totems, viz., ghardie (emu), durantoo (red kangaroo), coynbinya (butter fish), coolallah (salmon). I only give these totems as a sample; there were numbers of others. Men and women of the same totems were allowed to marry. I have never heard of any other tribe where this was allowed. I would not accept it at first, until the king told me that he married a ghardie, he being a ghardie himself, his grandfather also married a ghardie. A woman takes her husband's totem at marriage. They were not allowed to marry blood relations under pain of death. First cousins are considered equal to brothers and sisters; foster children were treated as their own. Betrothal took place in infancy, and the marriage ceremony after circumcision and other rites performed on the male. At this ceremony blood being extracted from the candidate he was obliged to drink some. A humming instrument was used to warn all but the initiated away. No one was allowed to see this instrument under pain of death, unless they were initiated.

Of course this was long ago, the ancient stringency having grown entirely obsolete. The old king made one, and used it in my presence. I am not aware that this privilege has been extended to any other white man in this colony.

The Victorian natives have a similar instrument, and the same rules are observed concerning it. I have heard of a gentleman in that colony being allowed to see it, but he had to be initiated first. Without this initiation I have been allowed to see both. There is very little difference in the construction, none at all in the noise they make.

Cannibalism was unknown in this tribe, neither did they extract the kidney fat from their enemies, as was the custom of some of the Australian tribes. Being cut off from other tribes very little was known of war, consequently their weapons were few. The tribe was ruled over by a king, with head men selected from each of the local divisions alluded to above. The kingship was hereditary. The last king, who died recently, spoke of his grandfather as occupying that position when he was a boy.

The following legend as to the origin of the tribe was told me by one of the natives who received it from his father, he being noted for his good memory. The story was also corroborated by the king.

The father of the tribe, who was a giant, lived on Wauraltee Island, where he had always resided, and where he was ultimately buried. He had a brother in whom was vested power almost equal to his own. This brother travelled about. Once in his wanderings down the Peninsula he met a man belonging to another race, whether black or white "deponent sayeth not." They had a fight. The latter was speared, and his bowels gushed out. His conquerer then cut him into halves, the severance taking place just below the arms, and the upper portion he transformed into a bat (majaja). The bat he dispatched with a message to the conquered one's people who were camped on the beach. He returned and desired the conquerer to go to their camp for a consultation. This he refused to do, but waited until night, and stole upon them while they slept, setting fire to their camp, and burning them all to death. The wind arose and blew their ashes away, which turned into seabirds. These are the present shags, pelicans, gulls, &c. Previous to this the sea water was fresh. The mark of the cut in the bat they say can be seen now. The natives will on no consideration kill them. A spider, it is said, made the islands. They seem to have no idea how the main land came into existence.

They believed in a Supreme Being, and in the soul's existence after death. When any one dies belonging to Koornarra (north), the soul goes away in that direction, and *vice versa*. The body used to be kept for several days after death, and the doctor of the tribe would lie beside it, and profess to hold communication with

the departed soul, from which source he pretended to receive the secrets of his art. Of course this doctor was a great humbug. He would put stones and other things into his mouth, and suck the seat of pain, then eject them, pretending he had extracted them from the patient's body. The name a person had while living was never mentioned after death. Even amongst the present generation this rule is now observed. A man would never speak to his mother-in-law; if he wished to give her anything he would look another way, and pass it to her with both hands. Brothers and first cousins would not hold direct conversation with each other. Certain rules were observed in the division of food, which perhaps would not be interesting to go into at present. It is a mistake to suppose that corrobories were got up merely for dancing and noise. They had a great significance in olden times. In seasons of drought they had rain corrobories, so likewise when kangaroos and emus were scarce they had kangaroo and emu corrobories, &c. A man called the ghureldrie (I suppose analagous to the poet Laureate of England) made and sang the songs. He was a very important personage on these occasions. Messages were sent from place to place by notches cut in a waddie, rolled in the skin of an animal. I was the bearer of a stick message once from a native on the station to another on Wauraltee Island. I was told afterwards the purport of this message. It was not sent in the orthodox way by being wrapped in a skin, so I saw the notches, and learned their meaning. No grasstrees growing on Yorke Peninsula, it was difficult for the natives in olden times to get fire. The king has told me that he and others would travel to the Murray to get it when they had lost the fire, and were never molested by the natives there. The natives belonging to this tribe had only words to express numbers up to five, viz., arrigo (one), bulli (two), mungree (three), bulli bulli (four), yarrabali (five). Some of the northern natives have only words to express four. Papee is father; adgaah is mother; doomalah, grandfather; coojmunya, son; lanna, daughter; cabbie, water (it is cowie in the north); bardoh, meat; miah, bread—this would signify in olden times food of any sort except meat.

The Parkengees, or Aboriginal Tribes on the Darling River.

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By S. NEWLAND, Esq., J.P.  
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(Read September 29th, 1887.)

THE subject of this paper is one that not only interests us as a people, but it appeals to our sympathies as individuals since we cannot but admit that our happy prosperous lot in these bright colonies is purchased at the cost of the welfare, nay, even the lives of the possessors of the soil. It is pathetic to be thrown among the aboriginals and note how they wither away when brought into contact with the people of our race. It seems to make little difference how kindly they are treated, how well clothed or fed; they cannot breathe the same air as the white man and live. As they are evidently doomed to a rapid extinction it is of importance to posterity that, before it is too late, reliable information should be obtained of their manners, customs, and lives. That this is considered a sacred duty by this honorable Society is peculiarly gratifying to all true colonists whose avocations or position have interested them in the race we are displacing. I may add that, while congratulating the Society upon what it has already accomplished, I also feel it a distinguished honor to be allowed to contribute in some slight measure to-night to the result of its researches.

A few years ago the aboriginals of the Upper Darling were comparatively numerous; now they, in common with other tribes wherever the European has settled, have nearly passed away. This has been brought about by no epidemic, nor the use of intoxicants, or cold, or hunger; none of these have had much to do with it. I can vouch for their being well fed and clothed, and for years spirits were almost entirely kept from them; yet they died off, the old and young, the strong and weakly alike, sometimes with startling suddenness, at others by a wasting sickness of a few days, weeks, or months. On the Upper Darling the blacks, though divided into tribes, spoke the same language and were friendly. They call the river the Parka, and themselves the Parkengees. The tribal name of those I shall particularly treat of was Wampangee. The back country natives to the east of the river were

the Barrengées, at enmity with the Wampangees. They spoke a different language to the Darling blacks, but the same as those of the Lachlan, with whom they were friendly. In some respects their habits were different. They had a separate camp fire for each family, and I think more frequently practised polygamy, one wife often being a mere child. The tribe to the west of the Darling, up the Paroo to the Queensland border, spoke the language of the Parkengees, and intermarried with them. Just over the twenty-ninth parallel, being the boundary line between N.S.W. and Queensland, was a rival tribe with a distinct language. At one time they struggled hard for their country alike against white or black who crossed the boundary line. Further to the south again, was another tribe at war with all three last-mentioned people, and known to them as Pernowries; these practised the rite of circumcision, or something of a similar nature. All these aboriginals used the same kind of weapons and hunted in the same way, though the inhabitants of the Darling were much the finer race and more expert in the water, while some of the back country natives could not swim at all. I have now given a general sketch of the aboriginal inhabitants of the country, but it is with those living on the River Darling itself I have to treat on this occasion.

The Wampangees were divided into two families or sects, named Keelparas and Muckwarras, which intermarried, but a Keelparra could not marry a Keelparra or a Muckwarra a Muckwarra. A brother had the right of giving away his sister, which he usually did with a view to his own matrimonial interests. They were in this way promised when quite children, and in the event of the death of the claimant his nearest of kin became possessed of his rights. A brother had also a right to his deceased brother's wife. I knew a rather remarkable case of this kind, which strongly proved that "love will still be lord of all." One of two brothers had died, leaving a fine young widow, who was claimed by the survivor, known as "Old Manum," in accordance with tribal custom. His claim was allowed by the tribe, but the young woman had bestowed her affections upon a young fellow and would have nought of "Manum." In vain was the by no means gentle persuasion of the waddy tried—her constancy was unshaken. As a general arbiter the dispute was frequently submitted to me, and, I must acknowledge, on one occasion my sense of the justice of the old man's claim, according to aboriginal law, outweighed my sympathy for the cause of true love, and I consented to his administering a little mild correction, which the old villian assured me would be quite sufficient. A sight of the victim after was enough. I made "Manum" relinquish his courtship and title to the young woman, but this result was not brought about until after years of persistence on the part of the claimant, and quarrels among the members of the family

and tribe. No doubt, prior to the possession of the country by the whites, the matter would have been promptly settled by the death of the young lover.

"The blessings of civilisation" to them must always have appeared a questionable benefit. Before the advent of the "Boree" (a term signifying whiteman or devil, so plainly expressing their opinion of us), they were numerous and happy. The river supplied abundance of fish and water fowl, as well as immense quantities of "parper" on the low lands after the subsidence of floods. The sandhill country was equally prolific after rain, and from both plains and highlands the roots of the wild geranium and other plants were collected, cooked, and after being trampled into a pulp in their coolamans (a wooden basin made out of the elbows of hollow box limbs), were kneaded into large balls and kept for future use. "Parper" is a term applied to many kinds of grass or herb seed. It was collected by the lubras and children, put into bags or skins and ground between two stones when required. One large flat stone was laid on the ground, some seed put upon it and a smaller stone worked round with the hands, water occasionally being added; when finished it had much the appearance of our gruel. Nor should it be forgotten that during the floods the water-fowl laid eggs in countless numbers in bush, grass, or hollow limbs of the trees.

They have always represented themselves to me as comparatively free from disease; they emphatically deny having known some of the most loathsome complaints common to civilised nations, such as syphilis. To me their life for a people having no ambition, no aspiration for anything higher, appears rational and happy. Bark canoes stripped from the box or gum trees served as an easy mode of transport. Their nets, made of a kind of flax or rush, enabled them to catch large quantities of ducks. These are stretched across streams, or even the river itself when sufficiently low, from convenient trees on each side, or, failing them, from forked poles. A rope run through the meshes on one edge of the net supported it, after the fashion of a tennis net. One end of the rope was made fast on one side the stream, then passed over the bough of a tree or pole about 12ft. high, and across the water to another similar tree or pole, and then tied to a stick lightly thrust in the ground, the net thus being suspended immediately over the centre of the stream. If there was no cover, a few bushes were stuck up in the soil and one or two blacks stationed behind them, while others beat down or up the stream, unless the ducks were flying of their own accord, as is usually the case morning and evening. As the birds approach the net the watchers there fling high in the air above them pieces of bark, at the same time uttering a shrill whistle, in imitation of the cry of the hawk. The flight of ducks, possibly flying above the hanging net, dart down to escape their supposed enemy, and, their momentum being too great to turn,

strike it with sufficient force to draw the stick, and the falling net envelopes them. One of the natives immediately rushes in, and, wringing their necks one by one, flings them on shore. This is quickly done, and the net drawn up ready for the next flight of the birds. In the old days bronze-winged pigeons and other birds were caught in a similar way, by the net being stretched across a narrow glade in thick timber, down which they were in the habit of flying to water. The emu is caught by the Riverine blacks in somewhat the same way as wild animals are trapped in other countries, only, instead of a pit at the end of the lane, a noose is used. In the river districts of New South Wales there used to be great numbers of V-shaped enclosures — if that term can be applied where the large end is open. At the narrow end a lane was made, where the nooses were hung. The fences of these erections were of the most flimsy character, formed of sticks and bushes, over or through which the birds could easily have escaped; but the silly creatures, when once driven in the funnel-shaped entrance by the blacks, always followed the fences to the apex and the fatal noose. Another mode is, taking advantage of their curiosity, to entice them sufficiently near for killing by spear, waddy, or boomerang. They can be brought quite close up by sitting or lying down and making peculiar sounds, or fluttering a rag or ribbon. I have not only frequently seen it done, but have done it myself; and occasionally known them come up to a camp without any effort being made to attract them. On the Finke the aborigines used to practice another method of capturing them — by poisoning small water-holes. During my late visit to the north a blackfellow showed me a bush, the leaves of which they used for the purpose; it was the only one of the kind I saw in my travels, or, indeed, have ever seen. I may add, I brought a specimen down, and it is now, with many others, in the possession of the Secretary to the Trans-continental Railway Commission. I believe a few bullocks were poisoned by drinking on one occasion from a waterhole prepared in this way for emus by the aborigines. On the Darling, water-hens (Kerkalees) are caught in small nets at the outlet of a funnel-shaped enclosure, similar in shape to that used for emus, but made of small bushes or grass.

For catching fish a smaller net than that used for birds was stretched across a small creek emptying a lake or billabong. As the river falls a considerable current is created, down which the fish are forced into the net. In this way great numbers were caught. When the water back from the river became low, large quantities were obtained by driving them into shallow pens made of mud. There were also permanent stone pens formed on reefs across the Darling, now known as the "Fisheries"; these were an obstacle to navigation when the river was low, and have been destroyed by the captains and owners of the steamboats, or in some cases allowed to fall into disrepair by the natives themselves.

In the old days, while the stream continued low, great camps of blacks collected at these places for the purpose of obtaining fish. When first seen by the whites there were quite elaborate systems of pens, opening one into another, so that once in, there was little chance of the fish escaping before they were caught or speared. Another common and highly interesting mode of taking fish was spearing them; not the same way as that we are so familiar with, as illustrated by the figure in the canoe at the Exhibition, but by diving. Before this can be successfully carried on the water must be clear. The "muddy" Darling, as it is sometimes called, has a milky appearance until it is tolerably low, when it becomes quite clear, and later somewhat brackish. The black men then assemble on the bank of a deep hole with spears made of light rod-iron; before they had iron they weighted wood, so as not to be buoyant in the water. A fire is kindled, and, if the time is winter, the operators rub themselves from head to foot with grease to keep out the cold. Then with spear in hand the native glides into the water and swims noiselessly into the deep part; then turning with his feet down, and hands held above his head, the swimmer sinks down, looking up at the light, and when he sees a fish he rarely fails to transfix it. The first thing the observer then beholds is a fish on the end of a perpendicular spear, then a black poll followed by its attendant form, but scarcely a ripple on the water and certainly no splash. The fish is thrown or taken on shore, and the sport gone on with, apparently without a sign of fatigue in those engaged in it.

The builder rats are killed in a very simple but ingenious manner. The rats build houses, or rather large heaps of sticks, in which they live. Sometimes these are five or six feet high, and from one of these colonies (for many rats may inhabit a single heap) several paths radiate in different directions. I was once with a number of blacks out hunting when a colony was discovered. Immediately every spare garment was in request, a blanket was laid across one path, a coat another, a hat or a waistcoat, anything or everything (until most of the party stood in nature's simple garb) were placed over the rest, each having a kind of opening left on the side facing the rats' house. With waddy or stick in hand one or two of the hunters was stationed at each garment, with instructions to strike the instant a rat entered the opening left for him. I was told he would only linger for a moment, and that prompt action was imperative. The dwelling was then fired, and just when I had come to the conclusion that there was not a rat in it, or else he preferred certain death by cremation to a fair prospect of escape from at least one waddy, out came a streak of lightning along the path to my hat, followed by another, and another. The state of that hat attested how I struck, there could be no doubt of that, even my aboriginal censors did not question it—

they only complained of the promptness of the blows. Anyhow there were no rats under my pile, but several under those of the others. For promptness of action under such circumstances I have ever since believed the aboriginal excels the European.

Their power of tracking is simply marvellous; they will tell you the track of each horse on the station. They can follow a snake or a rat. It has even been said the most skilled can track a musquito. I have often known them to follow a small mob of lost sheep through the tracks of others, when to my eyes one as closely resembled the other as grains of wheat. But I remember seeing a blackboy once puzzled; every track he had previously seen he knew the creature that made it. We were on our return to the river from an excursion out back, when we came across the trail of a one-legged man with a crutch. For miles the boy followed silently wondering, and then asked me if it was made by a "debble debble"? Nor could he be quite re-assured until he saw the man and the crutch.

Among the tribes I have mentioned, the custom of making a youth into a young man is performed with some ceremony. The actors must be decked out with ochre, and feathers, opossum fur string, &c. A front tooth is literally knocked out in the following way: The hero or the victim, which ever he may be considered, is laid flat on his back and held so. The operator then holds the edge of a boomerang, or similar instrument to the tooth, and strikes it with stone or waddy, until it comes out. The youth must bear the pain without a sign, or be considered "toolucha"—cowardly. When the rites are over the young man wound round with the opossum fur cord, is started off by himself, unless some other has been initiated, in which case they can go together, away from the sight of women. They may be fed sometimes by the men, but so far as I know they have to depend upon themselves. At any rate they frequently appealed to me during the night for food. In about a fortnight they returned to the tribe without any particular notice. At the age of puberty the girls were kept from the sight of the men for a few days, during which time their bodies were wound about with coils of opossum fur repeatedly crossed over the breasts. They, however, were merely kept in a "yapra" (wurley), near with some female relatives, and not sent away as the young men were.

"Making rain" is a secret performance, neither the women nor strangers being allowed to be present. A particular kind of stone is required, a lot of grey hair from an old man's beard, some blood drawn from their own veins, and they frequently take a great deal. It is caught in a coolaman, a wooden vessel as previously described, and the whole, stone, hair, and blood mixed together and wrapped up, is sunk in a deep water hole in the river with many signs, much palaver and gesticulation. I have never seen the ceremony, but it has frequently been described to me. During

severe droughts I used to protest that the Wampangees were no good at making rain, but their faith never wavered. It was simply a question of time. If it came before they had gone through the ceremony they would declare it had been made by other blacks. According to them rain never fell without the exercise of aboriginal power, and, but for them, the white man, his cattle and his sheep, would perish miserably. I am inclined to believe that this was intended during some of the great droughts, when they made no attempts to bring rain, but their object was, in their opinion, defeated by the rival tribes making it. They were always acute enough to wriggle round a question. I remember once an old fellow, who afterwards assumed royal authority, being importuned to make rain by a drover waiting for a downpour before starting with fat stock to market. A £5-note was offered for rain within a given time. It must have been a great temptation for the old savage, as he certainly never had so much money in his aboriginal life, but he was equal to the occasion, and pushing it aside with a gesture of contempt, he exclaimed, "Bale mine wantum your money, Mr. Newland givem mine plenty," which, by-the-by, he did not ordinarily consider the case, for a more insatiable old villain I never knew.

The native doctors have many modes of alleviating suffering; some very simple and effective. That of applying the heated leaves of plants to the parts of the body affected is certainly beneficial, operating much the same as our hot fomentations and the application of hot flannels. I have seen the eucalyptus leaves used in this way with apparently very good effect. But in the so-called doctor's craft there is much humbug and imposture. The patient must be streaked over with lines of paint in a grotesque manner. The practice of sucking various articles from the suffering part is common to many tribes of the Australian aboriginals, as well as North American Indians and the Zulus of South Africa. I have seen the practitioner apparently draw out a bullock's tooth, the bottom of a tumbler, a piece of the jawbone of a sheep, fragments of pitcher, &c. It was useless to denounce him as an imposter, as the patient declared he or she felt the thing going from them, and the pain was relieved. They did not then require any more of the white-man's castor oil, but a pot of jam would expedite the cure. Sometimes the things extracted were buried, at others carefully kept as relics of the skill of the operator. Sickesses of this nature were generally attributed to some blackfellow having a grudge against the invalid and "making a bone." This is done by cutting and shaping a bone in a peculiar way, which gives its possessor the power of striking with disease any one he chooses. One of the same people is often accused of doing this, and even glorying in it, though his life may be frequently threatened by his terrified tribesmen.

On one occasion an old warrior, like a modern Don Quixote, had a hard struggle with a whirlwind, which are very frequent on the Darling in the summer months, but this was an extraordinarily strong one. It came slowly across a flat towards the station, twisting boughs off the trees and taking bushes and grass up in a column of dust. Then appeared Don Quixote in full war panoply, paint, weapons, and feathers. He placed himself near the store, the building most menaced by the foe, and danced, stamped, and gesticulated in a perfect frenzy of heroism and excitement. Nearer came the whirlwind and wilder grew the dance, the stamping, and the gestures. It caught hold of some empty cases piled up at one corner of the store, and flung them about; but it was the last attack. The warrior stood his ground, the building was saved! I had witnessed the whole thing, and well remember the triumphant smile with which the exhausted veteran came to claim his reward. This old man had many of the characteristics of the famous Don, his simplicity, conscientiousness, and heroism. As a people, I believe them by no means wanting in courage; indeed, I never knew but one coward among them, and he was abject enough not even to be ashamed of it. They could use their weapons with admirable skill, and protect themselves under a shield possibly 6in. wide by 2ft. long. On many occasions I have been supplied with numerous weapons, and told to aim them at a warrior who simply defended himself with a shield in one hand and a waddy in the other. I might rain spears, waddies, or boomerangs at each apparently unprotected portion of his body, that narrow strip of wood ever interposed where danger threatened. At a game of that sort you at first naturally feel that your opponent appears so exposed that you fear you cannot help hurting him, but after a bit you warm into exasperation at the ease with which your efforts are foiled, and pitch compunction to the winds in your frantic attempts to drop that grinning black demon behind his miraculous shield. But it is no use, and when your store of missiles has been three or four times over collected and expended, as well as every available stone, you realise this, and retire feeling that only for the invention of gunpowder colonisation would be attended with greater difficulties than you have hitherto supposed.

They are by no means devoid of humor. I recollect one night there being a great row in the camp, and, out of patience at last, going out and handcuffing the principal offender to a post. In the morning, from my room, I could see the prisoner lying apparently fast asleep in his blanket. After a while, thinking he might be set at liberty, I went out, and there lay my handcuffs on the top of a figure enveloped in the blanket. He had slipped his hands out directly I left and, providing a dummy representative, rejoined his companions in their camp, who thought it a great joke. All tribes, so far as I know, hold to the old barbaric law, "an eye for an eye and a tooth for a tooth." Several instances of this came under my

observation. A young woman (Nongo) was killed by her husband (Mallee) in a barbarous manner. He at once bolted up the river for another tribe. A party of four was immediately sent after to kill him. All were relatives of the murdered woman; one, her brother, was a cripple, but, having the right of the first blow, he accompanied them. They tracked him up for three days, and then killed him. Another case. A blackfellow struck his lubra a sudden blow with a waddy quite in the ordinary way, and killed her. He offered his bent head to the avenging kinsman to be struck as hard as he pleased. According to aboriginal law, this was considered to be all the justice that the case demanded. A furious blow was administered sufficient to kill a bullock, and the law was satisfied. Long-standing quarrels were also frequently settled in this way by the injurer bowing his head to the smiter. I never heard of these blows ending fatally, though certainly given with a will; but if they did the skull fractured would probably be held more in fault than the operator.

It has frequently been asserted that they practise cannibalism; but this, I believe, is in no sense true. They have to me invariably expressed the greatest detestation of the idea. They, however, do practice infanticide, and justify it on various grounds. The mother is too young, or not strong enough, or has not sufficient milk; but the usual excuse given to me—and I have known several instances of babies being killed—has been that they were deformed or imperfect in some way. There can be no doubt that a crippled child was not allowed to live; that is, if crippled at birth. It must be admitted that there was much sound philosophy in such a course in a people of roving habits. Apart from considerations of the deterioration of the race, there was the sterner obligation of self-interest, as each helpless creature increased the difficulty of moving, besides being another mouth to feed. If not destroyed at the birth they became too much attached to them subsequently to do it.

At the death of any member of the tribe, the camp was moved at once. This custom renders it almost useless to build permanent huts for them. The body, almost before the last breath was drawn, was doubled up into as small a compass as possible, and buried immediately, in many cases much attention being afterwards paid to keeping the grave neat. Great respect was paid to the old men, and many delicacies were exclusively reserved for them, principally of animals, birds, reptiles, or fish that were not easily procurable. The most esteemed of these the young men, women, and children were not allowed to eat. The wild turkey was one of these; but as the blacks decreased, and these creatures could be obtained more easily by the white man's appliances, their arbitrary laws were relaxed. They were very fond of fat, frequently eating to surfeit of it, particularly when a bullock was slaughtered, as well as profusely anointing themselves with it. Yet nothing would

induce them to touch pork in any shape. Whence came this remarkable antipathy I was never able to learn. Besides their implicit belief in evil spirits, they also believed that many deep holes in the river were haunted by a big snake called "Niche." In these holes they would not bathe or fish, and, on one occasion, when two white children were drowning, and might have been saved by some lubras who were present, they ran away, screaming "Niche!"

There are many different kinds of corroborees; some for both men and women, and others in which the men alone take part. If the women join, they generally stand some distance behind the men when dancing, and do not come prominently into the light. Occasionally the "hummer" is used, but not frequently; probably because it is considered too sacred to be seen by women or young men. When used it is taken out beyond the circle of light, so that, though the sound can be heard, it is impossible to see how it is produced. There is no doubt some of the corroborees terminate in a wild orgy, when practices are indulged in that our canons of morality by no means sanction. Like our own songs and music, some are lasting favorites with them, others are composed, tried, and quickly forgotten; and this is not to be wondered at, for they sometimes consist of but a few words of utter absurdity.

It has been asserted that the aboriginals of Australia have no traditions, but that is not quite correct, as a rather remarkable instance coming under my own notice shows. To the west of the River Darling is the Mount McPherson Range, on parts of which are hollow rocks or small caves, said by the blacks to be haunted by evil spirits they called the "Mullas." In the early days they would not sleep near these rocks on any account. They describe these "Mullas" as once a living people at deadly enmity with their ancestors, waging perpetual war, and that now they are dead their spirits yet roam at night searching for some solitary defenceless Parkengee to strike with sickness. Often when I have been camped with them they have heard at night the demons scream "Yahoo." Of course I could not hear it, but that was easily explained. The "Mullas" did not want me, it was the Parkengees they pursued with such persistent hate and revenge. So strong was this fear that they often declared they had been struck with illness by these nocturnal foes. They describe the "Mullas" as having been low of stature, broad, and immensely strong, with very long arms reaching nearly to their feet; but their most striking peculiarity was a sharp broad bone like the blade of an axe growing just above each elbow. With this they fought, striking back with the force of a kick from a horse. Though always much interested in their tales about these Mullas, I almost doubted if they really believed they had ever actually lived, until on one occasion when camped with some blacks not far from the range they showed me in a depression, scooped out on the top of a soft sandhill by the wind, a number of helmets shaped not unlike a traditional dunce's

cap, made of (copiga) gypsum. Altogether there were some dozens of these, many of them whole, many more in fragments. They were apparently made to put on the head, yet were too small for any ordinary human being. Up to now I have never been able to conjecture what could be their possible use—what they could have been made for. I tried them on my own head, as well as on the blacks, but they were not nearly large enough to fit any but a child. Some were quite 2ft. long, others less, and all hollow. I may state here that this “copiga” is the same material the river tribes use to cover their head with when in mourning, as well as smear their bodies, but they in no way make anything of the kind such as I saw on that sandhill. Much interested, I inquired if the blacks could give me any explanation, and was then told that there perished at the hands of their forefathers the whole Mulla tribe of hunger and thirst. They were completely surrounded, and in their last extremity those helmets were made to cool their burning heads. This was the revenge of the Parkengees for the wrongs of years, and since that deed of slaughter the spirits of the Mullas had haunted them and struck them with sickness when away from the camp fire or alone. They added that a few miles away to the west was hidden the skeleton of a Mulla which they could show me. I was interested and sanguine enough to go with them, and we searched high and low, but without avail; that treasure, for such it would have been, I never saw. Another disappointment awaited me, for when some time afterwards I went with a cart for the copiga helmets not one could be found. The blacks denied having taken them, but this they were sure to do, as I had ordered them not to touch one. No doubt for some superstitious reasons they had hidden them away; I never was able to discover where.

They also tell the story of a great calamity that befell the back country tribe with which they intermarried. In a fearful drought when nearly all the waters failed, the tribe in question collected upon the Perie Springs, situated in the Mount McPherson Range, about fifty miles from the Darling, some disease came among them and more than half of the tribe perished. They generally attributed this to the malevolence of the “debble, debble,” as usual, but one of the most intelligent told me he thought it was caused by the bad water. He showed me the spot that tradition pointed out as the site of the camp where nearly the whole of his people died, leaving them ever since but a remnant of their old numbers. From what he said it probably occurred two or three generations before the country was settled by the whites.

It has been suggested that this sickness was smallpox, as traces of it are to be found among them; but at this distance of time it is impossible to determine. They also would be likely to confound smallpox with a skin disease they are much affected with, very dissimilar in its more serious aspect, but sufficiently resembling it to render worthless any diagnosis we can make.

Of a future state they give many accounts, but I will now only attempt to relate one.

Old "Barpoo" was looked upon as a great scoundrel by the whites, consequently he was almost an outlaw, scarcely tolerated on any station. He refused to shepherd, he declined to cut wood, or draw water, or in any way to bow to the "Borees" rule. With his own people, however, he possessed boundless influence; they both feared and venerated him; some of them even believed he had actually visited their heaven, and he told them it was in this wise. When he was young there lived a very old man who was Barpoo's instructor in their native lore. He could cure all diseases, as well as cause them, and when he died his powers descended to his disciple. Shortly before his death he told Barpoo that after he was dead he was to cut a piece of flesh out of his thigh and eat it. This he did and immediately fell into a sleep in which his spirit flew away beyond the sky. There he saw the blackman's goddess in the form of a woman embodying all the charms the aboriginal covets. She received him with much kindness and showed him all the abundance of the joys prepared for his people, game of all kinds, plants, fruits, and fish, so that existence was a perpetual round of ease and feasting. The goddess conferred her favors upon the chosen of her followers, but there were also numerous lesser female divinities to welcome all. When this was narrated I inquired if the white man could not enter there, but I received a most emphatic narta (no). In no other instance have I heard the spirit watching over them described as a female, but the future immortal hunting grounds are always the same; there they hunt, fish, and surrender themselves to the voluptuous joys so bountifully provided, and there the hated "Boree" has no place, and I don't think we can wonder at it when we consider what their experience of us has been.

Their language is a poor one, as evinced by the repetition of the same word in counting; for instance, "barcoola" means two, and for six they have only the same word three times repeated, or eight, four times. Also in their laments the one word "wimper" is sang over and over again. When it comes to abuse and vituperation their vocabulary is sufficiently extensive, and it is questionable if the proverbial fishwife of our race could hold her own against her untutored sister in this respect.

The various tribes had their own country clearly defined, and that, again, was sub-divided among the individuals. It would appear that this might lead to confusion and disputes; but each bend in river or creek was named, as well as every hill, plain, or the smallest water, so that, once knowing these names, there was little difficulty in fixing a boundary or identifying a place. It is really surprising how the country of the Upper Darling is mapped out by them in this way, or rather was, when the aboriginal lords held sway. We have looked upon them with the lofty superiority of

our race, but the historical student will find far more in their laws and customs admirably adapted to their manner of life and the conditions surrounding them than is generally supposed.

I have endeavored, in compliance with the wish of several members of the Society, to prepare a vocabulary of the language of the tribe dealt with to-night, but I find my recollection is imperfect—circumstances may admit of some important omissions being supplied later. I have now simply to hope that the subject matter of this paper may prove of some service to the Society in its career of practical philanthropy.



VOCABULARY OF ABORIGINALS OF THE UPPER DARLING.

By S. Newland, Esq., J.P.

NAMES OF TRIBES:

Upper River Darling Tribe	Wampangee.
East Back Country Tribe	Barrengée.
West Back Country Tribe	Pernowies.
River Blacks generally	Parkengees.
One sect or family of the Wampangee Tribe	Keelparra.
Other sect or family of the Wampangee Tribe	Muckwarra.
A Keelparra must marry a Muckwarra and <i>vice versa</i> .	

English.	Parkengees, Wampangee Tribe.	English.	Parkengees, Wampangee Tribe.
Sun	uko	Month	munna
Moon	wycluca	Country	kera
Rain	muckra	Day after to-morrow	carrawambina
Heat	buchee	To-morrow	wambina
Cold	yackie	Rock or stone....	kernoo
Stone	curnoo	Flood	thulpa
Water	noco	Wind	yerto
Tree	yerra	River	parka
Fire	coonica	Fish	mungee
Canoe	pooltheroo	Dog	—
Club	nulanlula	Codfish	perndoo
Camp, hut, or house	yapra	Very bony fish on	} namba
Day	kylpo	rivers	

Vocabulary of the Aborigines of the Upper Darling—continued.

English.	Parkengees, Wampangee Tribe.	English.	Parkengees, Wampangee Tribe.
Snake	thooroo	Gypsum	{ copija (the lime of which is used for mourning)
Crow	wohka or wanco	Wood dish	coolaman
Egg or insect	pertie	One	necha
Wood duck.....	quanalie	Two	barcoola
Waterhen	kerkillie	Three	barcoola necha
Turkey.....	tickera	Four	2 barcoolas
Water spirit (in form of snake)..	} niche	Five.....	yenlamurra
Ant	monie	Six	3 barcoolas
Lizard	perndee	Seven	{ 3 barcoolas and 1 necha
Devil	boree	Eight	4 barcoolas
Blacks or aborigi- nal	} winbudgea	Nine	{ 4 barcoolas and 1 necha
Spirits of dead (foes they believe haunt them) ...	} mullas	Ten	murraola
Yell of evil spirit.	yahoo	Twenty	murraola tenabla
Dead.....	booka	Little	kichilka
Dead or stinking..	booka-booka	Great	coombudgea
Clothing	cumbie	Small	narrangie
Hot	buchie	Good	balara
Man ..	mallie	Bad	toolucha
Woman	nongo	Seeing	pommie
White man	boree	No	narta
Father	ambie	Posterior	curluma
Mother	mummuckie	Swim	weirca
Husband	mallie	Mine	una
Wife.....	nongo	Presently or di- rectly	} byle yarda
Child	perlo	Underdone	mucky
Companion, friend	cumbagi	Gone	burra
Hair of head	terto-woolkie	Make haste	burra beri
Head	terto	Run	culya culyera
Hand	murra	Gammon	parakigea
Eye	meckie	Other or another..	carra
Teeth	unthee	Afraid	mooyah
Ear	urie	Angry	ooyah
Foot.....	tenna	Track	mundoowie
Nose.....	mindolie	I or me	uppa
Hair.....	woolkie	You or thou.....	imba
Blood	jinky-jinkie	This	enoo
Leg	yelco	There	ethroo
Stomach	bingee	Here	akee
Sleep	boompapa	Where	wingera
Bread or flour....	munnoo	Big	werto
Grass seed	parper	Ill	micki
Fat	gori	Hungry	weelkucka
Dear or darling ..	wimberi	Very.....	murree
Salt	milca	Truly	murreeta
Mud.....	winja	Thirst	weechel
Frost	pungari		

The Nullabor Plains and the West Boundary of the Province.

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BY W. H. TIETKENS, F.R.G.S.  
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(Read November 4th, 1887.)

At present but little is known of the country adjoining the western boundary of this province, and with the view of inviting inquiry and renewing our interest therein, a few remarks upon such parts that have been visited may not be without interest.

Commencing, then, at Eucla. We know perfectly well that after passing through the belt of scrub-covered country that skirts this part of the southern seaboard the traveller enters upon the Nullabor Plains. Roughly speaking these plains may be said to lie between the 127° and 132° of east longitude, or about 250 miles in an east and west direction, so that a large part of their area is contained in West Australia. Many travellers have pursued a northerly course from different parts of the south coast with the view of crossing these plains, but I do not think their real extent to the northward has ever been determined, for in latitude $29^{\circ} 34'$ they were crossed by the expedition which was fitted out by Sir Thomas Elder, G.C.M.G., in 1875, and it may be remembered that Giles, who was in command, when returning to his depôt at Ouldabinna from the Boundary Dam, travelled on the edge of extensive plains that lay to the southward, so that I think it will be found that the Oldea Sandrange divides the plains into two sections. We might ask where this range begins to the eastwards? whether it be a continuation of the granites of the Gawler Range, or whether it starts from the Warburton Range or Mount Finke—certainly no one can say where it ends to the west. It was visited by Mr. H. Y. L. Brown, the Government geologist, in 1885. He travelled through it, from the *Oldea Water, in a northerly direction, and to the plains beyond. He advances the opinion that it is a granite formation covered with sand, and this is verified by the fact that to the eastward of Oldea Water there are many outcrops of granite, such as Wynbring, Mobing, Chimpering, Pidinga, and many others, although the latter place may be said to be on the southern slope of the range, and on the edge of the plain. At each of these places the granite outcrop forms into hollows, where water will always be found after rains. They are

* Spelt "Youldah Water" in accompanying map.

surrounded by a few hundred acres of richly-grassed land, and it may be observed that, with the exception of Yadina, which is on its northern slope, no granite outcrop will be found west of Oldea Water; and it seems worthy of remark that this, the only permanent water for many miles in any direction, seems to be at that part of the range where, so far as surface indications go, the granites end and the limestone begins. The range at this point is about 500ft. above the level of the plain, and can be seen a considerable distance from the south. I have always been much impressed with the value of these plains for pastoral purposes; and, in 1877, when in England, my representations of their value led capitalists there to direct me to take up suitable country and sink for water with the view to settlement; and I would wish to say that the credit of endeavoring to open up the country north of the Oldea Sandrange is due to the liberality of Mr. Louis Leisler and Mr. Bauman, of Glasgow, and that later on it was supplemented by the spirited enterprise of Mr. Philip Levi, of this city.

While engaged upon this undertaking, occasional opportunities offered of examining the country to the west and north-west of the Leisler Hills, where there is a large extent of valuable pastoral country, with a very extensive surface clay formation eminently adapted for the construction of reservoirs with large catchment areas. And, in the hope of finding suitable sites for wells, I followed the Oldea Sandrange in a north-west direction for sixty miles from Oldea without finding any perceptible change of country, except that the limestone is more frequently found on the surface. Upon one of these journeys, when returning to Oldea, I kept as near as possible to the south foot of the range, the mulga scrub though well grassed being almost impenetrable; these occasionally give place to more open country, with low limestone ridges, on which grow oaks and sandalwood. The depressions form into dry salt pans, around which fossil shells of various kinds will be found embedded in the limestone, and also strewn loose on the surface; from these I collected some very large spirals, which I forwarded to the Rev. J. E. Tenison Woods, of Sydney.

On this particular journey I was agreeably surprised to find well-grassed flats with a good clay surface, and at a place called Kydyning, with such appliances as I then had, I put down a small tank in a very retentive clay, and drained the water from the adjacent claypans into it; these clay deposits will be found extremely valuable in the future. Returning then to the Nullabor Plains, I think that in no known part of Australia will so large an extent of country be found where there never can have been any native population. The blacks on the south coast have no idea of anything that may be beyond their territory to the northward, and I believe it requires some persuasion to induce them to accompany a party travelling in that direction. Mr. J. W. Jones, the

Conservator of Water, in the diary of his travels across these plains in 1880, mentions some little difficulty that he met with of this kind.

The boundary line (the 129° of longitude) was crossed by Giles's expedition in 1875, in about latitude $29^{\circ} 20'$, where there were abundant evidences of a native population, for, in a water-channel that emptied itself into a salt lagoon, a dam had been constructed by the natives, which when full would hold some 4,000 gallons of water, so that, though not showing on the surface, there must be a good retentive clay deposit beneath. At this point the country consists of undulating limestone, covered with mulga, sandalwood, oak, and mallee, with occasional porcupine sandhills, the hollows being generally fairly well grassed. Similar country extends toward the west for eighty or one hundred miles, when it again opens out into extensive plains, reaching in west, north, and south directions to the horizon, and I think that to the south they continue uninterruptedly to the coast. The expedition was travelling across the plains for four and a half days before it arrived at their western edge. Of course we can form no idea how far they may extend to the north. The plains in this latitude maintain much the same character as they do to the south, the grasses and herbage being similar. Perhaps it was an unusually good season when the party crossed, for the long line of camels left a trodden track behind them in many places as there would be if they had passed through a cornfield. The telegraph line is laid across their southern extremity, and as these plains are attracting the attention of English capitalists, there seems a probability that in the near future they will be traversed by a line of railway from the westward. Water has been obtained by the Water Conservation Department, and every mile so gained to the northward will be valuable towards reaching a change of formation where water may be obtained at a shallower depth, and it is a pity the department cannot put more of their boring appliances there. The report of the agriculturalists who, under instructions from the Commissioner of Crown Lands, have just returned from this country, confirms the opinions expressed by earlier travellers, viz., that it is eminently adapted in every way for pastoral purposes, and probably for the growth of cereals. And I think the climate, soil, and rainfall will compare favorably with that of the northern areas, or any part of Riverina, and we may hope that before many years have passed this long-neglected but valuable part of the colony will receive more attention.

Continuing a northward course, on the 129° meridian, the next point we arrive at that has been visited is the Tomkinson Ranges, in latitude $26^{\circ} 18'$. I think these ranges offer a much larger extent of valuable pastoral country than either the Musgrave or the Mann Ranges, as they abound in waters that cannot be considered other than permanent; and it is, as far as we know, one of the

most interesting parts of the province boundary. The ranges, I think, are more detached than those to the eastward, and open out into broad, well-defined valleys, well clothed with many varieties of grass and herbage. Leaving the Tomkinson, and travelling northward for ninety miles, the Petermann Ranges will be reached, largely composed of ironstone at their eastern extremity, with occasional outcrops of metamorphic rocks. They have not the imposing appearance of the Tomkinson, but extensive areas of well-grassed land will be met with. They were visited by Giles's expedition in 1874, and it should be remembered that he had but a very light equipment, with horses only, and it being the height of summer he was not in a position to wander far from known waters with safety, but he seems to have had no difficulty when in these ranges. Of the country to be met with north of the Petermann Ranges nothing is known until we reach latitude $22^{\circ} 20'$, where it was crossed by the expedition under Colonel Warburton in 1873, where he found a salt lake country and high sandstone cliffs, and the Mary Springs near the boundary. Further to the southward he seems to have met with a barren and inhospitable country that prompted him to try a more northerly course.

In 1856, Gregory crossed this meridian in latitude $18^{\circ} 20'$, when, following up Sturt's Creek, he describes it as a low, level, grassy country, subject to inundation. On this expedition he was accompanied by the Baron Sir Ferd. von Mueller, and they returned to the settlements with much valuable information of the unknown interior. The next known point to the north on the boundary line is in latitude 17° , where it was crossed by the expedition under Alexander Forrest, of West Australia, in August, 1879. At this point he met with the Negri River, running to the westward, with well-grassed country on either bank. Forrest expressed his opinion that this river joined the Ord River about ten (10) miles to the westward, but time would not permit him to follow either to any distance. He reports the Ord River as a magnificent stream twenty chains wide and running strong, with good feed upon its banks. Continuing northward to latitude 15° , we arrive at the seacoast, between which and the Ord River I imagine the country must now be pretty well known.

We have thus roughly passed over the country from the south to the north coast on the 129° meridian, and have found many points of value and interest. Between these there are gaps of over 200 miles in extent, and we may infer that these unknown distances contain features and tracts of country of which it is desirable to know something, and which we hope may offer inducements for future settlement, and that the gold-bearing formation of the Kimberley may extend further to the southwards than we are aware.

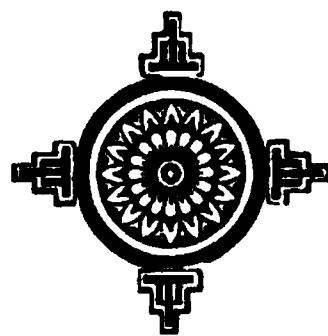
The discussion which followed the reading of the foregoing paper was chiefly on the Nullabor Plains country; the soil was reported to be light and friable, overlying crystalline limestone, but too porous for holding water, so that for purposes of settlement it would be necessary to construct cement tanks.

The average annual rainfall was estimated at about ten inches.

Land snails are to be found on the plains and northwards to the top of the Tomkinson Range. The height of this range is not known, but it has a more imposing appearance than the Mount Lofty Range, which may be owing to its being more precipitous.

The rainfall at the various stations on the coast, as published by the Government Astronomer, &c., Mr. Todd, C.M.G., in his annual reports from 1879 to 1886, is shown as follows:—

	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.
Eucla.....	11·03	8·55	8·25	12·125	8·27	10·20	9·99	11·0
Yalata	—	—	8·75	14·46	13·81	14·06	12·21	10·9
Fowler's Bay ..	12·21	9·65	9·16	13·615	14·58	12·37	12·16	10·6
Streaky Bay....	13·08	15·48	9·48	18·87	19·52	14·48	16·11	11·0



1

2

3

4

5

6

CONTENTS.

FOURTH SESSION.

	PAGE
Report of Council Meetings, Session 1888-9	1
Report of Annual Meeting, June 28th, 1889	3

FIFTH SESSION.

Report of Council Meetings, Session 1889-90	6
Report of Annual Meeting, July 9th, 1890	9

SIXTH SESSION.

Report of Council Meetings, Session 1890-91	10
Report of Annual Meeting, June 26th, 1891	14

SEVENTH SESSION.

Report of Council Meetings, Session 1891-4	17
Report of Annual Meeting, August 16th, 1894	21

EIGHTH SESSION.

Report of Council Meetings, Session 1894-5	25
Report of Annual Meeting, May 20th, 1895	28
"Some Aborigines I have known," by <i>Simpson Newland, J.P.</i>	37

NINTH SESSION.

Report of Council Meetings, Session 1895-6	55
Report of Annual Meeting, June 19th, 1896	60
"Australian Aborigines' Water-Quest," by <i>A. T. Magarey</i>	67
"Camels in Australia," by <i>N. E. Phillipson, J.P.</i>	83
"The Tides of South Australia," by <i>R. W. Chapman, M.A., and</i> <i>Captain Inglis</i>	93

TENTH SESSION.

	PAGE
Report of Council Meetings, Session 1896-7	103
Report of Annual Meeting, June 17th, 1897	106

ELEVENTH SESSION.

Report of Council Meetings, Session 1897-8	113
Officers and Members of Council	1
Report of Annual Meeting, and President's Address, June 7th, 1898 .	3
"Tracking by the Australian Aborigine," by <i>A. T. Magarey</i> . . .	119
"Easter Island and its Colossal Statues," by <i>Captain H. V. Barclay, R.N.</i> , including Detailed Report upon Easter Island, or Rapa-nui, by <i>Commodore W. Ashmore Powell, R.N.</i> , and Calling at Sala-y-Gomez and Easter Islands, by <i>Commander Bouverie F. Clark, R.N.</i>	127
"Abstract of Journal of Explorations in Western Australia, 1896-7," by <i>L. A. Wells</i>	149
Publications, &c., Received	172
List of Members	175



PROCEEDINGS
OF THE
Royal Geographical Society of Australasia.
(SOUTH AUSTRALIAN BRANCH.)

FOURTH SESSION. 1888-9.

COUNCIL MEETINGS.

November 2nd, 1888.

Present—Six.

Secretary reported that the Slab of Lindsay's L Tree was being forwarded to Adelaide.

February 5th, 1889.

Present—Eight.

Letter from Sir Thomas Elder, expressing his willingness to further the interests of this Society with the Royal Geographical Society, and also at the Science Congress at the Paris Exposition of 1889.

Hon. Dr. Campbell reported an interview with the Council of the Victorian Branch, who had promised a grant in aid for the Tietkens' Expedition, provided that the Branch was supplied with copies of maps, plans, sketches, and reports, immediately after their receipt by the South Australian Branch.

Resolved that the thanks of this Council be accorded to the Victorian Branch for its promised gift towards the Tietkens' Exploration Fund.

ATTENDANCE ROLL

SESSION 1888-9.

COUNCIL MEETINGS HELD, 2.

Sir Samuel Davenport, K.C.M.G.	...	...	...	...	...	...	2
W. B. Wilkinson, J.P.	...	...	...	...	...	...	2
J. W. Jones, J.P.	...	...	...	...	...	...	2
R. K. Thomas, J.P.	...	...	...	...	...	...	2
R. A. Tarlton	...	...	...	...	...	..	1
S. Newland, J.P.	...	...	...	...	...	..	1
Hon. Dr. Campbell, M.L.C.	...	...	...	..	...	...	1
A. T. Magarey	...	...	...	...	...	...	2
Thos. Gill	...	...	..	...	...	...	2

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

ANNUAL MEETING.

The Annual Meeting of this Society was held on Friday, 28th June, 1889, in the Society's Rooms, Grenfell-street. J. L. Bonython, Esq., J.P. presided, and there was a fair attendance.

The CHAIRMAN explained that the President (Sir Samuel Davenport) should have delivered an address on that occasion, but that he had met with an accident which prevented his attendance; and the address in consequence would be given on a future occasion.

CHARLES TODD, Esq., C.M.G. moved that the following new rule be added to the Constitution—"That with a view of extending the usefulness and popularity of the Royal Geographical Society of Australasia (South Australian Branch), Committees of five be appointed on the following sections: 1. Geographical, including Exploration; 2. Historical and Ethnological; 3. Geological, Botanical, and Zoological; 4. Commercial and Educational; 5. Meteorological." He would suggest that a Sub-Committee be appointed to confer with the Council of the Royal Society with a view of bringing about an amalgamation of the two bodies. If the suggestion of this new rule was carried into effect the various sections would cover very much the same ground as the Royal Society traversed, and it would therefore be better to have one Society doing the whole work. Geology was one of the subjects proposed to be taken up, and this was already dealt with by the Royal Society, a large percentage of the papers by Professor Tate having reference to this science. The question, therefore, was whether it was wise to have the two Societies travelling over the same ground with

the same ends in view. It was proposed in 1883 to establish in this colony a branch of the Royal Geographical Society at a meeting attended by His Honor the Chief Justice (S. J. Way), Sir Samuel Davenport, and himself, when it was decided that it would not be wise to establish a Geographical Society at that time; and that, if necessary, geography should be made one of the subsections of the Royal Society. He believed it would be wiser to bring about an amalgamation of the two Societies; but, if it were deemed advisable to continue the Society as a separate institution, it would be well to infuse new life into the work by the establishment of these sub-sections.

The TREASURER (Mr. T. Gill), in answer to a question, said there were 72 members on the roll, and that the arrears of subscriptions amounted to £135 9s.

The CHAIRMAN explained that historical and geographical fields, especially the former, furnished scope enough for the independent existence of the Society.

Mr. TODD said that it was proposed to establish geological and meteorological sub-sections, and that these would travel over the same ground as the Royal Society.

The CHAIRMAN thought the historical section was bound to excite great and growing interest. Much matter could be got together at the present time respecting the early history of the colony that would probably be lost unless collected and published soon. This department would not in any way clash with the Royal Society.

Mr. WILKINSON agreed with Mr. Todd that it would be wise to amalgamate with the Royal Society. Their Association had been in existence for several years without making very much progress, and there was little probability of their making a move in the future. It would be a great advantage to amalgamate with the Royal Society, and it was very questionable whether sufficient people could be got together to make the various sub-sections successful. According to the Constitution of the Society the objects were scientific, commercial, educational, and historical, which was practically the same as those proposed in the new rule.

The CHAIRMAN explained that "historical" in the Constitution referred to geography and not to general matters.

The Hon. D. MURRAY considered that they should avoid the possibility of the Society being snuffed out, as there was yet a great deal of unexplored country in Australia. They should avail themselves of every means of infusing new life into the Society, as it was most important that its existence should not be endangered. While he approved of the historical sub-section he thought more sections than necessary were proposed.

Mr. GLYDE said if the Society became a geographical section of the Royal Society there would be a considerable reduction in

the working expenses, as only one paid Secretary and one room would be required for the two bodies.

Mr. KRICHAUFF objected to the extension of the proposed increase of scope to the Society. The six sub-sections would need 30 members each to work them effectually, and he could not see that they had that number available.

Mr. THOMAS said that unless fresh life were infused into the Society he did not know how they could work the various sub-sections. It might be better to amalgamate with the Royal Society and thus strengthen both bodies. But in the direction of history he thought much might be done with advantage to the colony.

Mr. GILL said that several gentlemen had promised to exert themselves in the work of the sub-sections if the proposed alterations were made in the Constitution, and no doubt it would become, under the new system, a flourishing concern. As showing the necessity for historical records, he had received from England the minutes of the S A. Literary Society, established in London in 1834, before which Society the late Sir R. D. Hanson read a paper; two original members of the Society, Mr. N. Symonds and Sir Jno. Morphett, were still in the colony, but he was very doubtful if there were half a dozen men in the colony who ever knew there was such a Society.

Mr. J. W. JONES thought as this Society was now firmly established, strengthened still further by its connection with the Parent Society, and that as much exploration had yet to be done which could not otherwise be carried on, it would not be wise to amalgamate with the Royal Society.

Mr THOMAS moved, Sir Wm. MILNE seconded—"That all the present officers be re-elected." Carried.

Resolved also that Mr. Goyder be *ex officio* a member of the Council.

The proceedings then closed.

PROCEEDINGS
OF THE
Royal Geographical Society of Australasia.
(SOUTH AUSTRALIAN BRANCH.)

FIFTH SESSION, 1889-90.

COUNCIL MEETINGS.

October 4th, 1889.

Present—Seven.

Messrs Tietkens and Berry were in attendance.

Mr. Berry inspected the two slabs of wood brought down from Glen Edith, and identified some growths thereon as marked by him on the tree from which the pieces were taken some seventeen years ago; the growths exhibiting these marks in *alto rilievo*.

February 3rd, 1890.

Present—Seven.

Sir Samuel Davenport reported that His Excellency the Governor had consented to become the patron of the Society.

Resolved to urge upon the Government the desirableness of accepting and publishing Mr. Tietkens' map and the journal of his recent explorations on the capacity for development of West and Central Australia.

Reported that a paper was read by Mr. Tietkens at the Exchange Room, Town Hall, on January 21st, followed by an interesting discussion.

June 13th, 1890.

Present—Six.

Reported donation to the Society of two books from Prince Roland Bonaparte, Paris, and of an oil painting of Stuart's Tree, Northern Territory, and photograph of the members of Stuart's Exploring Party, and two volumes Proceedings from Queensland and Victorian Branches, which had been acknowledged with the thanks of the Society.

Mr. Tietkens was elected an honorary member in recognition of his services to this Society, and in the cause of scientific research in his recent expedition.

July 1st, 1890.

Present—Five.

Only formal business transacted.

PROCEEDINGS
OF THE
Royal Geographical Society of Australasia.
(SOUTH AUSTRALIAN BRANCH.)

SIXTH SESSION, 1890-91.

COUNCIL MEETINGS.

July 15th, 1890.

Present—Five.

Only formal business was transacted.

August 8th, 1890.

Present—Six.

Mr. W. H. Tietkens, F.R.G.S., presented to the Society some botanical specimens collected during his recent trip to Central Australia. Accepted with thanks.

Letter read from A. C. Macdonald, Esq. (Hon. Sec. Victorian Branch), relating to the proposed Antarctic Expedition. The Secretary was asked to write for full particulars of probable cost and the means available for such an expedition.

August 25th, 1890.

Present—Five.

A letter was read from Sir Thos. Elder, G.C.M.G., to Baron Von Mueller *re* land exploration in Australia, and offering to equip an expedition for that purpose.

Resolved, that the hearty thanks of this Society, and of the province generally, are due to Sir Thos. Elder, G.C.M.G., for his munificent offer to send out another exploring expedition at his own cost, and that his offer should be heartily accepted.

September 12th, 1890.

Present—Eight.

A donation was made to the Society by the South Australian Government of two volumes by R. Brough Smyth "On the Aborigines of Australia."

Resolved, that a sum not exceeding five pounds be devoted annually to the purchase of books bearing upon Geographical Literature, and that friends of the Society should be appealed to for donations of books, periodicals, and papers for the library and table of this Society, with the view of rendering the room of interest and use to members.

September 29th, 1890.

Present—Seven.

Only formal business was transacted.

November 7th, 1890.

Present—Six.

The following donations were reported:—Queensland Meteorological Report, "Memoirs de la Société Académique Indo-Chinoise," and one pair Aboriginal Death Shoes by Mr. T. G. Magarey; Wight's Australian, India, China, and Japan Trade Directory from Mr. Thos. Gill.

Mr. A. Forrest, the explorer, was introduced by Mr. W. B. Wilkinson to the President and members of the Council present.

December 12th, 1890.

Present—Five.

Resolved, that the Hon. the Chief Secretary be requested to arrange, if possible, that a native name be given to the new necropolis to be opened near Salisbury.

Between March 20, 1891, and November 7, 1894, a number of Council meetings were held for the transaction of business relating to the Elder Exploration Expedition.

March 26th, 1891.

Present—Seven.

The President sent an expression of regret and of tribute to the memory of the late Dr. Schomburgk, wishing that this may appear on the records of this Society.

June 26th, 1891.

Present—Seven.

Received donation from Mr. W. H. Teitkens of Part 2 Royal Colonial Institute; also, one volume "Picturesque New Guinea," presented by J. W. Lindt, Esq., F.R.G.S., Melbourne, and a volume, "Coasts and Islands of the Mediterranean Sea," presented by Mr. Thos. Gill. To be acknowledged with thanks.

The Secretary reported that on June 17th, 1891, the Hon. J. L. Parsons moved in the House of Assembly—"That in order to secure the scientific exploration and the examination of the commercial resources of the Antarctic region provision should be made by this House." Mr. Parsons referred to the scientific and commercial results that would accrue from the fitting out of an expedition to examine those regions. The motion was negatived."

ATTENDANCE ROLL

SESSION 1890-91.

COUNCIL MEETINGS HELD, 9.

Sir Samuel Davenport, K.C.M.G.	...	...	...	...	...	..	5
G. W. Goyder, C.M.G.	...	...	...	...	..	...	4
S. Newland, J.P.	...	...	..	...	...	...	8
W. B. Wilkinson, J.P.	...	...	...	...	...	...	5
F. E. H. W. Krichauff, M.P.	...	...	...	...	...	...	4
C. H. Goode, J.P.	...	...	...	...	...	...	5
Hon. J. L. Parsons, M.P.	...	...	...	...	...	...	5
R. K. Thomas, J.P.	...	...	...	...	...	...	4
T. Gill ..	...	...	...	...	..	...	5
A. T. Magarey	...	...	...	...	...	...	9
J. W. Jones, J.P.	...	...	...	...	..	...	6

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH

ANNUAL MEETING.

The Annual Meeting of this Society was held on Friday afternoon, June 26, 1891. Sir Samuel Davenport, K.C.M.G., presiding over a good attendance.

The Report of the Council showed that thirteen new members were elected during the year, and that the members generally had taken a great interest in the proceedings of the Society.

The Council had to chronicle the death of a very valued member, Dr. R. Schomburgk.

In July, 1890, the Government took from the Society the privilege they had up to that time enjoyed of free telegrams. This was greatly to be regretted. The Government has, however, granted free office telegrams for the use of the Elder Exploring Expedition, and the Western Australian Government has granted the like facilities to the Council as long as the Elder Expedition is in the field.

During the year Mr. W. P. Auld, a survivor of Stuart's party, delivered a lecture to the Society. Unfortunately, no other lecture could be secured during the session, although the Council is confident of better success in this direction during the year.

The Council are gratified in acknowledging donations of specimens of native curios and botanic specimens from Mr. W. H. Tietkens; and take this opportunity of saying they will gladly receive donations of books, maps, and illustrated papers, so that the rooms may be made useful and attractive to the members.

Owing to the utterances of Baron Sir Fred. Von Mueller at the meeting of the "Australasian Society for the Advancement

of Science," held in Melbourne last year, increased interest has been taken in exploration both in the unknown regions of Central Australia and also the problems awaiting solution at the Antarctic regions.

Sir Thomas Elder, G.C.M.G., has undertaken the whole of the expenses of a scientific expedition for exploring the unknown parts of Australia, and has placed the entire management of it and the control of the funds in the hands of the Council. The party is now supposed to be in the region of the western boundary of the Province.

An Antarctic Expedition, to be fitted out jointly by the Swedish and Antarctic Geographical Societies, is proposed, at an estimated cost of £15,000. Of this sum £14,600 is deemed to be assured. Baron Dickson has promised £5,000, Sir Thomas Elder £5,000, and Australia, so far, generally promising £4,000. Sir Thomas Elder has also placed the whole arrangements, so far as his donation is concerned, in the hands of this Society. The vessel should be in Australian waters in July or August, 1892, so as to be in a position to take advantage of the spring and summer seasons at the South Pole.

The Council consider it desirable that some public recognition should be made of the work of Flinders, Sturt, Light, and Stuart, and that monuments should be erected in Victoria Square—that promises of assistance have been given, and that decisive action is desirable.

The balance sheet showed receipts for the year to be £157 11s. 3d., including a grant of £50 from the Government; and the expenditure £161 16s. 5d., leaving a balance in the bank of £16 5s. 3d.

The Hon. S. TOMKINSON expressed his dissent at the action of the Council in asking the Government to assist the Antarctic Expedition, and he was glad that the Government had declined to accede to the request.

The Hon. J. L. PARSONS said he was very sorry he had not pressed his motion in the House of Assembly to a division, because he had the assurance of several members that they would have supported him. Sir Thomas Elder had asked him to undertake a subscription among members of the House, which he had done.

The PRESIDENT said that years ago it was made known that whales were to be found in the Southern Seas, and as they had not been interfered with for forty years, it was likely that a profitable industry might be opened up in bone and oil for South Australia and the other colonies.

The Hon. Secretaries were asked to convey to Sir Thomas Elder the thanks of the Society for his patriotic offer by which the Expedition now exploring unknown country in Central Australia was sent out by the Geographical Society of Australia.

The PRESIDENT moved—"That the thanks of the Society be given to the officers for their services during the past year." He said there had never been a Society whose officers had shown such voluntary devotion to its affairs.

The Hon. S. TOMKINSON moved, Rev. C. T. NEWMAN seconded—"That the officers for the past year be re-elected excepting Mr. Todd and Mr. Krichauff, who resigned, and who were thanked for their services." Mr. G. P. Doolette and Mr. J. L. Bonython were elected to fill the vacancies.

This closed the proceedings of the meeting.



PROCEEDINGS
OF THE
Royal Geographical Society of Australasia.
(SOUTH AUSTRALIAN BRANCH.)

SEVENTH SESSION. 1891-4.

COUNCIL MEETINGS.

July 7th, 1891.

Present—Eight.

Mr. Gill had his collection of books on Australian Exploration, by request, placed on the table for the inspection of the Council

Resolved—"That it is very desirable that the Council should acquire this collection of books for £60, many of the works being out of print and of great historical value; and that a vote of thanks be accorded to Mr. Gill for his offer of such a valuable collection."

December 11th, 1891.

Present—Seven.

Sir Samuel Davenport reported that Sir Thomas Elder had very kindly desired the Council's acceptance of £50 towards the purchase of Mr. T. Gill's collection of books, maps, &c., on Australian Explorations.

Resolved—"That the thanks of this Council be sent to Sir Thomas Elder, G.C.M.G., for his handsome donation to this Society for the purchase of Mr. Gill's valuable collection of books relating to the Australian aborigines and the principal exploration enterprises which have made Australia known to the world." Carried unanimously.

January 12th, 1892.

Present—Nine.

A copy of Mr. Carruthers's report on country triangulated (viz. the Everard, Musgrave, Mann, and Tomkinson Ranges, and Deering Hills) during the years 1888-1889 and 1890 was received from the Surveyor-General; also twenty-four specimen copies of W. & A. K. Johnstone's new map of England were received from Messrs. Wigg & Son.

To be acknowledged with thanks.

February 19th, 1892.

Present—Ten.

The President laid on the table a gift to the Society of four drawings of Mr. Stephen King's original illustrations of scenes of the McDonall Stuart's Expedition, from Mrs Ann E. Billiatt, of London.

Resolved—"That the thanks of the Society be sent to Mrs. Billiatt, and that the drawings be framed and hung in the rooms of the Society." Carried.

March 4th, 1892.

Present—Ten.

Circular letters were received and read from the Manchester Geographical Society and the Paris Société de Géographie, announcing the death of their respective Presidents, the Duke of Devonshire and Monsieur de Brein.

Resolved to send a letter of sympathy to each Society."

May 2nd, 1892.

Present—Eight.

Mr. E. O. Robinson, of Port Essington, was introduced to the Council, and gave some information respecting the tree the explorer Stuart marked in 1862. Mr. Robinson expressed his willingness, if desired, to superintend arrangements for the removal of the tree with a view to its preservation.

Mr. Gill laid on the table a brass-covered compass supposed to have belonged to Wills, of the Burke & Wills Expedition, and which Mr. Kerridge, of Cuthero Station, N.S.W., had kindly lent for the inspection of the Council.

Resolved—"That Mr. Kerridge be written to acknowledging his kindness in this matter."

June 27th, 1892.

Present—Seven.

Mr. A. S. Doolette presented to the Society a small water-color picture of the grave of John Poole, second in command of the Sturt Expedition of 1845.

To be acknowledged with the thanks of the Society.

August 22nd, 1892.

Present—Six.

The Honorary Secretary reported that the Government had agreed to print a thousand copies of the "Flinders Memory Cove Memorial."

February 27th, 1893.

Present—Seven.

The subject of this Society amalgamating with kindred societies in South Australia was brought under discussion.

Resolved—"That the President interview Dr. Cleland of the Royal Society and the secretaries of other societies with a view of ascertaining the feeling of those bodies on the subject of amalgamation."

October 27th, 1893.

Present—

Resolved—"That the subscription to this Society be reduced to 10s. 6d. per annum." Carried.

August 2nd, 1894.

Present—Five.

Received, a letter conveying the resignation of Sir Samuel Davenport as President of the Society.

Resolved—"That the thanks of the Royal Geographical Society of Australia, and of colonists generally, are due to Sir Samuel Davenport for his long and arduous services in the cause of Geographical Science; and that this meeting views with great regret his resignation of the office of President of this Branch, which he has held since its establishment."

Carried.

ATTENDANCE ROLL

SESSION 1891-94.

COUNCIL MEETINGS HELD, 11.

Sir Samuel Davenport, K.C.M.G.										
G. W. Goyder, C.M.G.	.	.	.	.	.	.	.	.	.	..
S. Newland, J.P.	...									. .
W. B. Wilkinson, J.P.			.	...	..	.	.	.	.	..
Hon. J. L. Parsons, M.P.		,	...		..	..	..	.	.	.
C. H. Goode, J.P.		.	.	...				..	...	...
J. L. Bonython, J.P.	...	.	.	.	.	..	..	..	...	...
R. K. Thomas, J.P.	...	.	.	.	.	.	.	..	...	...
G. P. Doolette	...	..	...	...	...
Thos. Gill	...	...	...	...	...	..	..			..
A. T. Magarey		.	..	.	.	..	.	.	.	.
J. W. Jones, J.P.	.	.	.	.	..	..	.	.	..	..

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

ANNUAL MEETING.

The Annual Meeting of the South Australian Branch of the Royal Geographical Society of Australasia was held at the Victoria Hall on Thursday, August 16, 1894. C. H. Goode, Esq., presided.

Capt. Hone, F.R.G.S., wrote that a previous engagement prevented his acceptance of the invitation for this meeting.

A letter was received from Sir Samuel Davenport, in which he said, *inter alia*—"Your proposal to arrange for some lectures during the season near at hand affords me the opportunity of doing an act of common justice to the Society by tendering to the Council my resignation of the Presidency with which they have so many years most generously honored me. For public convenience your lectures are very properly arranged for evening gatherings, and unfortunately for me I am unable to attend them. This fact alone excludes my acting as your President. If permitted still to continue as a member of your Council that will remain to me a source of great satisfaction. I am grateful to the Council for the kind consideration they have ever accorded me."

Mr. R. K. THOMAS moved—"That this Branch has learned with great regret of the resignation of Sir Samuel Davenport, K.C.M.G., of the office of President, which he has filled with great ability for the past nine years, and desires to record its grateful acknowledgments of the great services which he has rendered to the Royal Geographical Society and to geographical science generally." He said when the Society was formed some nine years ago it was felt that no one was more fitted to take the position of President than Sir Samuel Davenport. (Hear, hear.) And the experience of those nine years had amply justified the judgment of that time. (Hear, hear.) Those who had attended the meetings of the Council could not have

failed to have marked Sir Samuel's unfailing courtesy and the ability with which he had conducted the proceedings, and the public were deeply indebted to him for the very able and instructive addresses given by him at the more public gatherings of the Society. He sincerely trusted that he would not altogether sever his connection with the Society, but hoped Sir Samuel would continue to give them the benefit of his advice and ripened experience at the meetings of the Council. (Hear, hear.) The Society was fortunate in that to fill so important a position as President they had secured the services of Mr. G.W. Goyder, late Surveyor-General. (Hear, hear.) His knowledge of all parts of the country, his wide experience, and his actual experience as an explorer eminently qualified him to fill that office, and it was gratifying to learn that Mr. Goyder would give some of his well-earned leisure to the Society. (Hear, hear.)

Mr. S. NEWLAND seconded the motion. He heartily endorsed the remarks made by Mr. Thomas, and every individual member of the Society would join in echoing his statement as to Sir Samuel's courtesy and to the able manner in which he had discharged his duties as President. (Hear, hear.)

The motion was carried.

The CHAIRMAN moved the adoption of the balance sheet and report which were as follows:—

"1. Since the last report, dated June 26, 1891, your Council have held fifty meetings, and in addition very numerous meetings of the sub-committees of the Council have been held relative to the detail management of the Elder Exploring Expedition.

"2 The lectures delivered under the auspices of the Society have not been very numerous, but have been of great interest, comprising as they have lectures by Mr. W. H. Stanley, F.R.G.S., on Africa; by Captain Hore, F.R.G.S., on Lake Tangayika; by Dr. Brown, F.R.G.S., on Picturesque New Guinea; by Mr. Tietkens, F.R.G.S., on Nullabor Plains; by Mr. A. T. Magarey, on 'Smoke Signals of the Aborigines of Australia'; and by Dr. Chewings, on 'The Physical Features of Central Australia—their Promise of Mineral Wealth'

"3. Full particulars have been published of the results of the Exploring Expedition to Central Australia fitted out by Sir Thomas Elder, G.C.M.G., F.R.G.S., the leader of which was Mr. David Lindsay, F.R.G.S., and the general management of which was entrusted by Sir Thomas Elder to this Society. A special volume of our proceedings has been published containing the leader's journal and map. The geological and biological results have been published in the Proceedings of the Royal Society of South Australia. These publications show the valuable contributions to geographical and other branches of science which have resulted from the work of the Expedition. Your

Council wish to express their acknowledgment of the munificent generosity of Sir Thomas Elder, G.C.M.G., in equipping, entirely at his own cost, this Expedition sent out for exploring the blank places on the map of Australia.

"4. Your Council have also to acknowledge the indebtedness of the Society to Mrs. Ann Billiatt for drawings of scenes and views from McDouall Stuart's explorations; and to Mr. Oscar Friström, for a clever portrait in oils of Tommy Walker, a South Australian aboriginal.

"5. Your Council have much pleasure in reporting that the free use of a very suitable room for the library and maps, &c., of the Society has been secured in the Court buildings, Victoria Square, for which the thanks of the Society are due to the Honorable the Commissioner of Public Works and Superintendent of Public Buildings.

"6. Through the generosity of Sir Thomas Elder, G.C.M.G., your Council have secured for the library a very valuable collection of books on the exploration and the aborigines of Australia.

"7. Your Council have the painful duty of recording the decease of Mr. Henry Foote, Mr. M. Weidenbach, Mr. James Robin, and the Rev John McEwin, for many years members of this Society.

"8. Your Council greatly regret having to state that Sir Samuel Davenport, K.C.M.G., President of this Branch of the Society from its inauguration, has, through his inability to attend evening meetings and lectures, intimated his desire to retire from the position of President. Your Council wish to acknowledge the great and valuable services which Sir Samuel Davenport has rendered to the cause of geographical science and to this Society, and they have pleasure in recommending that he be made a life member of the Society.

"9. In conclusion, your Council have the satisfaction of intimating that the honorary Treasurer's balance sheet shows a credit balance.

"2nd August, 1894."

Mr. E. SABINE seconded the motion.

Mr. THOMAS pointed out that the report contained no reference to the recently returned Horn Expedition. When the report was written they did not know of the date of the return of the party. Perhaps the Secretary could be empowered to draft a paragraph to add to the report.

Mr. J. W. JONES said he had asked Professor Tate, Dr. Stirling, and Mr. Winnecke to attend that meeting, but unfortunately both of the former gentlemen were unable to be present, as Professor Spencer and Mr. Watt, two of the members of the Horn Expedition, were arriving by train that evening, and they desired to attend at the railway station to meet them.

THE SESSION.

one to the station to represent the
had promised, if possible, to attend
a motion referring to the Hon
(Hear, hear)

ved—"That the following be the
the following year:—President, M
Mr. T. Gill; Honorary Secretaries
Rev C. T Newman; Council, S
S. Newland, C. H. Goode, A. T
, R. K Thomas, and J. Langdon
r. J. W. Jones."

at he had held the office of Honorary
and he felt that his duties would no
post any longer He thought, too,
when the Society should appoint

with the name of Mr. Jones omitted

that the thanks of the Society be
for his long and earnest service
vacancy created by his retirement be

motion, which was carried.

E Sabine were elected Auditors.

PROCEEDINGS
OF THE
Royal Geographical Society of Australasia.
(SOUTH AUSTRALIAN BRANCH.)

EIGHTH SESSION, 1894-5.

COUNCIL MEETINGS.

September 10th, 1894.

Present—Seven.

Only formal business was transacted.

October 3rd, 1894.

Present—Six.

It was proposed to arrange for a portrait of Sir Samuel Davenport, the late President, as a mark of appreciation of his services in geographical science as President of this Society since its inauguration; the portrait to be painted at a cost of £50, and subscriptions to be invited for this purpose.

November 7th, 1894.

Present—Seven.

Only formal business transacted.

February 8th, 1895.

Present—Nine.

The Hon. Secretary read a letter from the secretary of the S.A. Art Gallery (in reply to the Council's offer) notifying the acceptance by the Committee of the portrait of Sir Samuel Davenport, which had been recently painted by Mr. McCormac, and agreeing to a formal presentation of the same by His Excellency the Governor.

April 5th, 1895.

Present—Five.

Received letter from the President, G. W. Goyder, Esq. C.M.G., resigning his Presidency on the ground of ill health.

Resolved—"That the resignation be referred to the annual meeting of subscribers, and that a letter be written to Mr. Goyder expressing the deep regret of the Council at losing his valuable services."

Resolved, also—"That the annual meeting be recommended to elect Mr. Goyder a life member of the Society."

May 9th, 1895.

Present—Seven.

Only formal business was transacted.

May 20th, 1895.

Present—

Only formal business was transacted.

ATTENDANCE ROLL

SESSION 1894-5.

COUNCIL MEETINGS HELD, 7.

G. W. Goyder, C.M.G.	4
A. T. Magarey	6
W. B. Wilkinson, J.P.	5
C. H. Goode, J.P.	5
R. K. Thomas, J.P.	4
S. Newland, J.P.	3
J. L. Bonython, J.P.	2
Thos. Gill	5
Rev. C. T. Newman	5.

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

ANNUAL MEETING.

On Monday evening, May 20th, 1895, the Annual Meeting of this Society was held at the Refreshment Room, Town Hall. Simpson Newland, Esq., J.P., was voted to the chair, and there was a fair attendance of members.

The SECRETARY (Rev C. T. Newman) read the annual report, which was as follows:—1. From various causes your Council was not appointed till part of the year had passed, consequently its duties have been for a period of seven months only. During that time seven meetings of the Council have been held 2. Your Council regretfully report the decease of Sir Wm. Milne, who was a member of the Society for several years. 3. During the year thirty-nine gentlemen have been elected ordinary members of the Society 4. Meetings of the Society, open to the public, have been held, at which papers have been read by the following gentlemen:—Rev. J. Jefferis, LL D., on "Mount Etna;" Mr. Simpson Newland, J.P., on "Some Aborigines I have known;" Mr. J. F. Conigrave, J.P., on "South Australian Explorers—Eyre, Stuart, and McKinlay." Arrangements have been made for periodical meetings during the ensuing winter months, and papers of interest have been promised by several gentlemen. Your Council beg to direct the attention of members of the Society to the valuable collection of works, maps, &c, in the Society's library, and to suggest an inspection and perusal of them, the room being accessible at any time on application to the Hon. Secretary. 5. Following upon the retirement of Sir Samuel Davenport, K.C.M.G., from the Presidency of this Society, a desire was expressed that some recognition should be made of the eminent services which he had rendered to the Society and many other institutions in South Australia, as well as the high esteem in which he is held by all classes of the community; and, as a fitting memento, it was decided to ask Sir Samuel to sit for his portrait to Mr. A. McCormac, the well-

known portrait painter. To this he consented, and the artist produced an excellent life-size likeness in oils, which the Council asked the Board of Governors of the South Australian Art Gallery to accept and place in the Gallery. This the Board, after inspection and approval, readily agreed to do. A formal presentation, in the presence of a number of the members of the Society and other friends, was made by the President of the Society (Mr. G. W. Goyder, C.M.G.), and His Excellency Hon. S. J. Way, Lieutenant-Governor, in a complimentary address, accepted the portrait, which has been placed in a prominent position in the Gallery. Sir Samuel Davenport was present on the occasion, and gracefully expressed his pleasure at this recognition of his connection with the Society. 6. The Council has received communications from the Royal Geographical Society of England relative to the Sixth International Geographical Congress to be held in London in July and August of this year. The President of this Society had been elected a Vice-President of the Congress and provision made for an elected delegate, and it was unanimously agreed to ask Mr. David Murray, now in England, to act as the delegate of this branch at the Congress. 7. Your Council very greatly regret that, owing to failing health and distance from the city, the esteemed President of the Society, Mr. G. W. Goyder, C.M.G., tendered to the Council his resignation of his office. The Council, in view of the near approach of the annual meeting, did not take steps to fill the vacancy, but by minute and letter expressed its deep sense of the loss the Society sustained by Mr. Goyder's retirement from its counsels, and recorded its high appreciation of the valuable services which he had rendered both to the Society and geographical science generally. Further, the Council recommends that Mr. Goyder be elected a life member of this Society. 8. In conclusion, your Council has pleasure in submitting herewith the statement of accounts by the Hon. Treasurer, which show a small credit balance.

The TREASURER (Mr. T. Gill) read the balance-sheet as follows:—Receipts.—Balance brought forward from previous statement, 4s. 5d.; members' subscriptions, £39 18s. 6d. = £40 2s. 11d. Payments.—Hire of rooms for lectures, £3 18s.; other expenses connected with public lectures (use of lantern, printing and advertising), £12 4s.; purchase of books for library, £1 8s. 6d.; office expenses, salary of Assistant Secretary, &c., £18 14s. = £36 4s. 6d. Balance in English, Scottish, and Australian Bank, £3 10s. 6d.; in hands of Hon. Treasurer, 7s. 11d. = £40 2s. 11d.

The CHAIRMAN said it was his pleasure to move the adoption of the report and balance-sheet. It had not been an eventful year, but in it the Society had done good work. (Hear, hear.) Mr. W. P. AULD seconded. Carried unanimously.

Mr. R. K. THOMAS said they would all agree with the hearty expression of regret in the report at the retirement of Mr. Goyder from the position of President after a brief occupancy of the office. The members of the Council felt it was all too brief, because Mr. Goyder had devoted himself for many years to the affairs of the Society, and had been a valuable member of the Council in all respects, and it was with feelings of great pain that the Council received the intimation of his resignation. (Hear, hear.) The duty now rested upon them to appoint a successor, and the Society must feel that they were fortunate in being able to secure the services of a gentleman who would worthily follow in the footsteps of Mr. Goyder and Sir Samuel Davenport. (Hear, hear.) He had pleasure in moving that Mr. Simpson Newland be President of the Society for the ensuing year. Mr. Newland had already consented, at the earnest solicitation of the Council, to accept the office. He had been for many years a most active member of the Council, and most useful in advising the Council and assisting the Society at general meetings. They were indebted to him for the lectures he had given the Society and the interest he had taken in its affairs. (Hear, hear.)

Mr. C. H. GOODE seconded. It was a source of regret to all of them to hear that Mr. Goyder should have felt it necessary to resign his position. They have been fortunate in securing Sir Samuel Davenport and Mr. Goyder, and in obtaining Mr. Newland they had done exceedingly well. Mr. Newland had distinguished himself as an explorer. He was an old colonist, and he had also distinguished himself as an author; and he was known not only upon this side of the world, but on the other side as well. (Hear, hear.)

Carried unanimously.

The PRESIDENT said he had scarcely recognised himself when hearing himself described as Mr. Goode and Mr. Thomas had described him. Certainly he was very pleased if he had at any time been of assistance to the Society, and he hoped after having accepted the important position that he would be still more useful in the future. He had been told that he would have to deliver an address, but time would not permit of it. He accepted the position with much diffidence. He felt it would be a hard task to forward the duties so ably performed by Sir Samuel Davenport, and later on by their no less esteemed member, Mr. Goyder. (Hear, hear.) When Mr. Goyder accepted the position the Council felt they had obtained a successor well able to tread in the footsteps of his predecessor, and from the very day he took office he evinced the deepest interest in the welfare of the Society, and his resignation came upon them as a shock, especially when it was known that his health rendered such a step absolutely imperative. He should have liked

to have glanced at the duties and definitions of the Geographical Society, but time would not permit. There was one thing. If it were possible they should do more in printing reports than they had done in the past. (Hear, hear.) Some two or three years ago the Government used to assist the Society in this particular, but since the days of retrenchment they had declined to do so, and whatever printing had been done had been done at the expense of the Society. To do the printing as it should be done would require more funds than they had at command. Certainly they were not impecunious, because they had a small credit balance. The number of members had increased. That was due very much to Mr. T. S. Reed, the Assistant Secretary, who had been most indefatigable. He trusted he would continue in office and obtain more members, and that the Society would increase in members, influence, and wealth. He thanked them for the honor they had conferred upon him, and trusted he would fulfil the duties efficiently. (Applause.)

Mr. GILL moved and Mr. A. W. DOBBIE seconded—"That Mr. J. H. Angas be the Vice-President of the Society."

Mr. DOBBIE proposed—"That the following gentlemen be members of the Council for the present year:—Messrs A. T. Magarey, W. B. Wilkinson, R. K. Thomas, J. W. Jones, C. H. Goode, W. P. Auld, and T. H. Bowen." Mr. W. STRAWBRIDGE seconded. Carried.

Messrs. C. Sabine and J. F. Conigrave were appointed Auditors on the motion of Mr. W. BURFORD, seconded by Mr. T. S. REED.

The REV. C. T. NEWMAN said, although they could not adequately reward Mr. Goyder for his work in relation to Geographical Societies in this colony and in other parts of the world, there were ways in which they might honor him in relation to the South Australian Society. He had pleasure in moving—"That Mr. Goyder be a life member of the Society, and that he be a Trustee of the property of the Society in succession to the late Mr. W. Everard." Mr. THOMAS seconded the motion. Carried.

Mr. GOODE moved and Mr. DOBBIE seconded—"That the thanks of the Society be accorded to the members of the Council for their services in the interests of the Society during the past year." Carried.

The CHAIRMAN mentioned that the Hon. Treasurer (Mr. T. Gill) and the Hon. Secretary (Rev. C. T. Newman) were not submitted for election because those offices were for three years, and they were elected last year.

After the business of the Society had been concluded the CHAIRMAN introduced the Rev. J. TUCKWELL, who read a paper dealing with the recent archaeological discoveries and inscriptions in Western Asia. The public had been invited to the lecture,

and they accepted the invitation in great numbers, the room being hardly large enough to hold all those who attended. Mr. Tuckwell, who has been lecturing on similar subjects in the subjects lately, has a wonderful fund of knowledge of ancient ruins and ancient peoples. Opening with a few general observations as to the manner in which discoveries of ruins bearing ancient dates and inscriptions had verified the Sacred Writ, he spoke of how far archaeological science had gone towards upsetting the theory of evolution. If we had sprung from a lower race there must have been evidences of it in the past. There was not; instead everything pointed to a high form of civilisation existing thousands of years ago. Aided by a large map illustrating the position of cities now only remembered almost as myths of the past, Mr. Tuckwell gave most interesting accounts of the life, characters, and customs of the denizens of the cities built upon the banks of the Euphrates. He told how even to the present day tradition existed among the tribes of the deserts connected with names known in Scripture. He produced several fac-similes of inscriptions found in the ruins in Western Asia, and gave interesting and scholarly information upon the construction and adoption of the symbol writings used in those days. He was astonished, he remarked, to find that there was not a Babylonian or Syrian relic of any sort in the Adelaide Museum. Australia had done nothing in the exploration of Western Asia. Surely there were four gentlemen in Adelaide who would give £100 to fit out an expedition to the country of the Chaldeans. If they did this and placed themselves in communication with the British authorities doubtless they would be placed on a spot where treasures would most likely be found.

The Hon. Dr. CAMPBELL, in moving a vote of thanks to the lecturer, mentioned that if any one wished to continue the study of the subject introduced by Mr. Tuckwell he could do so by becoming a member of the Victoria Institute in London. Mr. A. T. MAGAREY seconded. Carried.

In replying to a vote of thanks proposed by Mr. C. H. GOODE and seconded by the Rev. J. TUCKWELL, the CHAIRMAN explained that not only was the Museum lacking in treasures from ancient lands, but they even had not a perfect southern native shield, and would not get one if they delayed much longer.

The following valuable publications have been received and placed in the Society's library, and the thanks of the Council have been forwarded to the donors:—Reports from the Smithsonian Institution, U.S. National Museum, from Mr. L. H. Sholl; Victoria, New South Wales and Queensland Branches of the Geographical Society; "Records of Geological Survey of New South Wales," from Department of Mines, Sydney;

Scottish Geographical Magazine;" "Journal Manchester Geographical Society;" pamphlet by Lieutenant-General Chapman, from Royal Geographical Society; reports of Royal Colonial Institute; annual report South Australian School of Mines; reports—University Heidelberg, De la Sociedad Geographica de Lima, Des Sciences Internationale de l'Algerie, De Société Geographie de Marseille, do. do. do., De Toulouse; Syrischen Wüste," Nach Mosul, by Dr. Max von Oppenheim.

PAPER

READ BEFORE THE

Royal Geographical Society
of Australasia.

8th SESSION, 1894-5.

SOUTH AUSTRALIAN BRANCH.

and the repeated blows of a waddy split them. The narrow wooden shield on the contrary was not intended or ordinarily used to stop a blow or a weapon, but to ward it off. The bark shields of the Ramingara, or Encounter Bay tribe, were cut and stripped green from gumtrees, then shaped and hardened by fire. Withes bent into handles were fixed into the inner side so as to give a secure hold to the hero using them. I believe none of the coastal tribes of this part of the continent knew the properties of the boomerang or used the weapon. I am supported in this opinion by Mr. H. A. E. Meyer, who lived for some years at Encounter Bay, keeping a school for the education of aboriginal boys, and with some success. He is the author of a "Vocabulary of the Languages Spoken by the Aborigines of Southern and Eastern Portions of South Australia," and therefore a valuable authority. Mr. Meyer does not say the weapon was not known by the Ramingara tribe, yet as he makes no mention of it in his work or vocabulary we may assume that they did not possess it. He mentions a flat two-edged weapon about three feet long used for fighting, but that was not the boomerang. I believe this is the weapon often confused with it by those having but a superficial knowledge of the true properties of the perfect boomerang. Many of the northern tribes of the continent, for instance, make a flat elbow-shaped instrument, but with no idea that it will do more than cleave the air rapidly. In my journey to the Finke and MacDonnell Ranges I certainly never saw a true boomerang.

I am indebted to Dr. Browne, who accompanied Stuart in his heroic expedition into the interior of the continent, for further information on this subject, which confirms my own opinion. He states that he feels confident none of the tribes on the Lower Murray or on the coast possessed the weapon. He also informs me that Mr. George Williams (an excellent authority) even takes a wider range, and says the natives below the junction of the Murrumbidgee and for about a hundred miles up the Darling, in addition to the Lower Murray, did not use the boomerang. Occasionally one might come into their possession from a neighboring tribe, but it was not of their own manufacture. On the other hand, some old residents of the south are under the impression that the Encounter Bay tribe did use the boomerang, notably Mr. Giles Strangways and Mr. Watts Newland. The former expresses himself very confidently on the subject. The latter appears uncertain as to the Ramingaras (Encounter Bay tribe), but strongly asserts that the Tatiara natives used the weapon. I am inclined to think that both confuse the flat elbow-shaped instrument with the true boomerang, and the following incident seems to prove it. In the early days an important battle between the Ramingaras and their enemies of the Murray waters was stopped by Inspector

Tolmer as narrated in his book. He states that he destroyed the combatants' spears, shields, and waddies, but never a word about boomerangs, and I cannot conceive so important a weapon in warfare escaping notice if it existed. The Rev. R. M. Newland wrote a scathing letter, condemning Tolmer's action in destroying the aborigines' means of obtaining game for food as a wanton exercise of authority. Of course the Inspector acted under orders from head-quarters, and therefore could not be blamed. Personally I think it would have been far better to allow the blacks to have their fight out. It is an interesting subject, and I trust having called attention to it, the question whether the southern tribes, particularly the Encounter Bay tribe, used the wonderful weapon will be set at rest before it is too late. They had the womera or tarralye for throwing the light short spear, usually made with a thin grasstree or cane stem fitted to a wooden point some two feet long. These could be thrown much further than the long, heavy, all-wood spears flung by hand, and were therefore more useful in skirmishing and hunting. The waddies of all bear a great resemblance, though some tribes make different varieties of these in a very fanciful manner.

I never remember seeing any attempt among the southern tribe at making any tool or weapon to act as a tomahawk—to use, for example, to cut out opossums from their holes in hollow limbs or trunks; nor were there any marks of this having been done, while on the Darling and other rivers the marks made by the stone tomahawk are very common still, and easily distinguished from the clean cut of our useful steel tool by their bruised, hacked appearance. Opossums and kangaroo-rats were much more numerous on the coast, so that probably there was not the necessity to resort to cutting them out. They also used a barbed spear, or more frequently a sharp hooked stick, to draw them out with—a method I never saw tried on the rivers except for grubs, and for them a stem of cane grass with a knob on the end was employed. This is pushed along the hole made by the large, fat, rich grub generally in box or guntree stems or roots, and the unhappy owner dragged out to regale the appreciative appetite of the aboriginal epicure. Nor were the southern inhabitants such expert hunters in other respects as their brothers of the interior. They never appear to have practised netting birds in the way the Riverina blacks did. They speared fish from the surface, though not apparently to a very great extent. The aboriginal of the rivers on the contrary transixed his fish, frequently when the waters were low and clear, from below, an extremely interesting and wonderful operation, worthy of the most skilful capturers of earth's creatures. No doubt the coast tribes depended principally upon the sea for their sustenance. Crayfish and other kinds of shell

fish abounded when the European arrived, besides vast numbers of the finny tribe they caught in nets skilfully made of tough fibrous flags, rushes, and grass. Hence there was not the incentive or necessity to become accomplished hunters that so often pressed upon the dweller in the immense expanse of country where drought obtains. The seasons being certain there were also regular crops of grass seeds and several kinds of fruits, such as native peach and montries, covering the sandhills on the seashore in great abundance. Birds were numerous, and their eggs and young must have been an important item in the aboriginal larder; and bear in mind that he was not troubled by our nice and inconvenient distinction between good and bad eggs; indeed chicken in its earliest and tenderest stage best suited his decidedly delicate taste and appetite. In very truth, the more I reflect upon the condition of the aboriginal, particularly the residents in the rich districts of the coast, the more I am forced to the conclusion that he enjoyed an easy life, feeling little of the struggle for existence that not unfrequently oppressed the inhabitants of the arid interior.

The Ramingaras no doubt caught birds in many ingenious ways, but neither they nor the contiguous tribes appear to have understood the practice of netting then adopted by the Riverina natives. With them the netting of birds attained such perfection as to be almost scientific. The shy fleet emu they noosed or decoyed near enough to kill with their weapons. The native hen, or Kirkelle, was adroitly netted in its thickest haunts; ducks caught in great numbers in long nets hung on a line stretched from upright poles or trees over streams; pigeons and other birds in a similar way, in nets hung from trees across the bottom of glades down which they flew to water in the evenings. Smaller birds were obtained in various ways, all evincing a wonderful knowledge of the habits of animated nature.

Of the members of the Ramingara or Encounter Bay tribe in the early days of the colonisation of South Australia among the most noted were Big Solomon, One-armed Charlie, and Big Tom. There were others less well known we will glance at presently.

Big Solomon was an immensely powerful fellow, considerably over six feet in height, and reputed to be the strongest man in the district save one, a prominent headman of the whale fishery. The rival feats of strength performed by these two heroes was a frequent theme among the gossips and lovers of the marvellous. Solomon never took very kindly to the whites. He was a hunter and a warrior and clung to the customs of his forefathers. I never remember seeing him do a day's work whatever the inducement offered. He lives in my recollection in a much more picturesque, even heroic form, arrayed in full aboriginal panoply for the battle or the chase. A veritable son of Anak, proud of

his strength, confident of his skill, he stands armed with the shield, spears, and waddies of the warriors of his race. Save for the bars of red ochre and paint, which grotesquely yet terribly adorn his fierce features and form, and the feathers in his tossed up hair, he is stark naked. Not one thread or stitch of clothing is there to impede the free use of those massive yet supple limbs in the strife with foes, in which activity is life. There were numerous fights in those early days between the hostile tribes, in which great Solomon bore his part right manfully. Are they not written in the Chronicles of the South, "Paving the Way," and to repeat them would be but to tell a twice-told tale. Like all the untamable blacks Solomon died early, but he lived long enough to realise that his race was doomed to quick extinction, as, indeed, all the more intelligent among them realised almost from the first advent of the Europeans. Outwardly, with the aborigines' desire to say what would please, they might speak of our race as "good," and express their hope and belief that they would after death "jump up whitefellow," but those who got beneath the thin veneer knew that deep down there rankled a feeling of wrong and bitter hatred. Certainly, so far as I am aware, the subject of this sketch was quite satisfied with his black skin, and sincerely hoped that his white brother's proclivity to grab all would not extend to the next world. That under any circumstances they would become whitefellows is a form of sycophancy I never heard any individual of any tribe, except the Ramingara, give utterance to. Solomon's influence among his people was great, and even now his fame as a fighter is not yet forgotten by some of the wretched blacks living in the district, though they are not members of his tribe, for the Ramingaras are extinct.

One-armed Charlie was another irreconcilable. A morose fierce man, keenly sensitive about his mutilated limb, he would never allow it to be seen. The blacks said it had been injured by a shark when he was a mere boy, which would account for its being so shrunk and small, not larger than the arm of a child. With the curiosity of a boy I longed to see it, though far too much in awe of the haughty warrior to ask to do so or spy beneath the short opossum cloak that hung over his shoulder. While he lived the sight was withheld, but when he died an opportunity came to visit the encampment one night and watch the last rites being performed in honor of the one-armed hero. In the midst, suspended over the centre fire in a sitting position on a few cross sticks, was the dead chief. Naturally a tall man, his long unimpaired limbs fully stretched out occupied considerable space in marked contrast to the diminutive shrunken arm hung on his broad breast as in life. His head was held erect, the face wearing an even fiercer scowl than was habitual to him. A slow fire smouldered beneath the body, and frequently started

into a flame as the grease from the anointed corpse dropped into it, to be immediately quenched with a few ashes by one of the watchful attendants, so that the broil might not burn. There was a strong smell of "condolly" pervading the atmosphere accompanied by a subtler odor that appeared strongest near the suspended figure, and not devoid of that fragrance so frequently found where soap is absent. After the grill, which lasted two or three nights, was perfected, they placed the remains on a rude platform some feet from the ground in one of the sheoak trees then lining the seabeach. Where ultimately the remnant of Charley or in indeed any of the Ramingara heroes reposed I never knew, for it was one of their peculiar customs to bury in secret and raise no sign over the grave, in this respect being quite distinct from the Riverina natives, who bury openly, and mark and protect the graves of their dead with long and assiduous attention. All avoided speaking of the departed to strangers, but this reluctance appeared more marked in the coast tribes. The subject of this sketch was also a man of importance among his tribe. Though unable to defend himself effectually in consequence of his useless left arm, he was a fearless opponent in many a battle. I remember him figuring in more than one well-known fight. Right well he looked, too, in martial array, for his tall figure was a model of sinewy strength. On such forms there seemed nothing incongruous in the paint and feathers; on the contrary they were an appropriate adjunct to the savage accoutrements of the fierce warrior.

Big Tom was a tall, wiry man of a decidedly pacific disposition, though he could fight like a demon when the occasion arose. He used to perambulate the district with his two wives invariably turning up at harvest time to reap at least one field of my father's wheat, which he always took by contract. He thus utilised the labors of the partners of his joys and sorrows in a more effectual way than was possible under the despised daily wage system. Tom's attachment to his old master was deep and lasting, and he looked upon himself as bound by honor to him in all emergencies. He would shepherd to fill a gap, or do anything else if desired; but harvest work was his specialty. No more faithful, honest, reliable soul ever animated a black form, or a white one either. Without the smallest attempt at force or intimidation this service continued for years, until poor old Tom went to the happy hunting grounds. He, however, survived both Big Solomon and One-armed Charley, and indeed the greater number of his people. Let us hope that his life was happy and his end peaceful; he certainly deserved both, for his virtues were all his own, though he was only an ignorant, generally despised savage. When some valued friend has died we laud his virtues in such words as these, and scarcely feel that we can say more:—"He was a good husband, a kind father, and

true friend." Well, big Tom was all these. From him I learned much of the customs and opinions of his people, and I often heard him lament the decadence of his race. He and all his family figure in "Paving the Way" at considerable length.

Shaking Jack, so called from being affected by the palsy, was another noted character. His appearance was repulsively atrocious, and struck terror into the women and young people of the district. He generally stalked about stark naked, except for a lavish, gorgeous coating of grease and red ochre. No doubt the unfortunate wretch was deranged at times. It is generally accepted fact that savage tribes greatly respect the insane. This is not characteristic of the aborigines of Australia far as I know them. They are certainly kind to them, as to theirs of their sick, but they rather laugh at their vagaries than reverence them. To the best of my recollection Shaking Jack did not excite a much higher estimation among his own than among our people.

We now come to the Darling aborigines, in many respects a more interesting people. Of the Parkingee tribe, Barpoon, the recognised chief when the whites stocked the Upper Darling with sheep and cattle, was perhaps the most remarkable. In person tall, spare, stately; in manner quiet, reserved and dignified so far as any whiteman could judge, for he never unbent to them. Indeed, from first to last he refused to hold any intercourse with the hated Boree, much less work for him, wear his clothes, or even eat his food. He was rarely seen by me, not more than half a dozen times during the ten years that he lived after my arrival in the district, and never at the head station. On the few occasions we met, the proud savage took not the slightest notice of the stranger other than by the aboriginal's silent sign of aversion, spitting on the ground as he passed him. More he dared not do—scarcely that much as time went on, and a whip might find even his sacred shoulders. Less than that sign of contempt, probably never noticed by the casual server, he would not bring himself to show. Having once recognised that further resistance was utterly hopeless, he quiesced in the submission of his tribe, and though never submitting himself, he openly took no aggressive step against the conquerors, but no doubt many a poor nameless tramp met his fate at the hands of the untamable black chief in revenge for the wrongs of his people. About such matters all the members of his tribe for long kept an impenetrable silence, even the loquacious Watulganya (of whom we shall see something presently), but as years passed on I heard from that gradually more confiding youth of several suspected murders, though particulars are withheld. One instance may be worth narrating. A drover brought his mob of cattle from a long dry

into the Darling to water. Parched himself, he ran down bank and bent over a log to drink. As his lips almost touched the stream a dead face, just beneath the surface, met his eye. He was very dry, but he sought another spot to slake his thirst. Who the dead was I never knew, or any one else. My over-friend and informant peremptorily refused to show me the body or describe the place, alleging that there might be some delaying him on his journey. Long afterwards I had to believe that Barpoo's waddy was not innocent in the matter.

The squatters denounced the Parkingee leader as an old rascal, and judged by our code of ethics he probably was. To this conclusion I at once coincided, but with grey hairs and a modified judgment. It is not to be expected that Australian pioneers, when their dangers and difficulties were around them, could form unprejudiced opinions of their aboriginal foes.

Barpoo was hungry he doubtless killed a sheep or robbed a box of rations. As already intimated, I have little doubt he laid lonely travellers on the head as opportunity offered. We have not many of the heroic patriots of history done all things against the enemies and despoilers of their country. Barpoo's reflection shows something of what the fierce untamable must have felt when he saw the detested interloper take possession of all his country after slaughtering many of his people in their vain attempts at resistance, and bend the survivors to his service, making shepherds and stockmen of the nomads, then later to see them wither and die. There was nothing left for him but to die too, and die cursing the white man.

Barpoo's influence with the tribe was paramount. A noted medicine man and chief, they implicitly believed in his power to lead them straight in a future world, while he consoled himself by making death-dealing bones and much cursing of his white enemies. Do we not read in the best of all books that when all else failed the same expedient was resorted to on at least one occasion?

One night by the camp fire, out alone with Watulgunya, I gained an insight into the feelings of the inscrutable black.

I asked my sable companion what Barpoo taught them concerning their future state. The circumstances were most favorable for a confidential communication—Watulgunya was in a total funk. We were camped on haunted ground, in the midst of the rocks and caves where the ghosts of the dead were held high carnival, and he clung to me as a very protecter. Apostle Barpoo's gospel proved precisely what might be expected—all the wrongs and sorrows of this world set right; next; sunny skies to bask under, flowing streams and fertile plains abounding in fish and game to disport in and

unt over, with the trifling addition of an unlimited number of perpetually young and beautiful hours thrown in.

"Yes, Barpoo had seen all this; so it must be true."

"What of the poor whitefellow?" I asked

But, though Watulgunya believed every word he had been told, yet he did not think it wise, just then, to risk being sent to so much happiness by telling the Boree his ultimate fate. Subsequently I gathered that flame and fury at the will of the saved aborigine would be the white man's portion.

Toby, a tall, well-made figure, bearing the stamp of antiquity upon its every line, flits across the stage. A face mildly benignant, covered with grey hair, low-voiced, gentle, and as innocent as any child. Essentially a most mildly mannered man, had his color been white he would have been a really lovable character. A genuine Parkingee, he also clung to the customs of his forefathers, he might don the white man's shirt, or a petticoat worn as a shirt did just as well; but he refused to confine his nether limbs in a pair of trousers as beneath the dignity of an aboriginal. The European's food he accepted as the best available substitute for the superior article it had supplanted, but intoxicating liquor he pronounced "no good," and exemplified by by staggering and rolling his head about, asserting that it was made "Cobora walk about." Instinctively and by conviction he was a teetotaler, though perhaps he considered sugar a more necessary portion of his beverage. I have always looked upon Toby as a perfect gentleman, bearing a marked resemblance to Don Quixote. His simplicity was wonderful. He once, being in charge of a flock of sheep, was annoyed by wild dogs and came in for "physic." A number of baits duly charged with strychnine were given him with strict injunctions what to do with them, for he was just as likely to take them himself as give them to the dingoes. A piece of tainted meat tied to a cord was hung over his shoulder to so carry to a certain point from which he was to drag it as a trail to attract the dogs; on this he was to drop the baits. In due course he returned triumphantly, having conscientiously tramped the full distance, but still bearing baits and trail on his back as when he started. The young blacks could not speak of this exploit of the old man without shouts of laughter, but he never appeared to comprehend that he had given cause for amusement. Toby considered himself an infallible rainmaker, for which purpose he chiefly valued his venerable beard, and when required for the important ceremonies necessary to compel the reluctant element to fall, he cut it off with a liberal unsparing hand. On such occasions he would come to me, and after carefully examining mine would encouragingly say that when it was a little more "flourbag," it also could be utilised; all this with much the air of an indulgent parent telling a child that "if it is good it shall

have a treat." Poor old Toby, he lived to see all his kindred die. His son, Jollyboy, the bright, merry boy that figures in "Paving the Way," lingered the last. His loss nearly killed the doating sire, following as it did the death of his lubra, though if ever there was a happy release hers must have been. She had long been ill, but I never knew the cause until one day on going down to the camp unobserved I saw the blanket thrown back from her body, revealing a dreadful cancer full of loathsome insect life. Picking the insects away with a stick was kind, gentle old Toby. He looked up, saw me and burst into a wail of grief, appealing for assistance where none could be given. A few days later she died; surely it would have been a mercy to have ended her sufferings with laudanum.

Jollyboy, so called from his merry intelligent disposition and boundless good temper, was a universal favorite. As he is sketched at length in other pages it is unnecessary to dwell upon him here. Though inferior to many of his fellows in horsemanship, tracking, or athletic exercises, his qualities were sterling, and in the difficulties and dangers of the bush life of those days man could not wish for a truer, stancher companion than the subject of this memoir. Jollyboy once had a quarrel with a noted medicine man, of whom all were in terror, named Jacob. Jollyboy asserted that Jacob had made "a bone" to kill him, which the doctor, or juggler denied. A council was held, and Jollyboy was condemned to receive a blow on the head from a heavy club wielded by the accused. The young fellow bent to the stroke, delivered with right good will over the crown, and was sent sprawling. That settled the matter. No ill blood apparently followed. The owner of the broken crown expressed himself as satisfied; perhaps he was glad it was no worse. Jacob grinned sardonically, but was not supposed to discontinue his nefarious practices. Scarcely beyond boyhood Jollyboy sickened and wasted away, of what complaint I knew not, but it often affected his mind. Long before the disease appeared fatal he told me he was dying. Poor boy, in his case, as in many others, I felt so sadly unable to be of any use. Probably the medicines given were frequently wrong, particularly chlorodyne, which, having once taken, they always craved for.

On the death of Barpoo, Warlo Jemmy became the most influential man of the tribe, and after some years (being instigated thereto by some of the white jokers) he was duly crowned King by having a brass plate bearing his name and title hung round his neck, a dignity I believe he still bears, though his subjects are but a remnant indeed. When I knew His Majesty, he was in the prime of life, a big, strong, heavily built fellow, quite a marked contrast to his predecessor. He diplomatically truckled to the opinions of the strongest. Great, very great, at big palavers and corroborees

he loved to deck his huge person in the trappings of war, but though his courage was never questioned—indeed, his broken knuckles fractured in hand to hand combat attested his martial prowess—he then seldom fought. A hunter to the core he understood the habit of each animal, reptile, bird, fish, and, I may almost add, insect of his country. He also possessed a profound knowledge and had a deep awe of the Mallas, those malignant spirits that haunted and destroyed the trembling Parkingees.

"I hear 'em," the King would say, "bale white man only me, that one come up last night plenty sing out. Mine think it blackfellow by and by tumble down."

King James was the husband of Polly, who, sharing the vicissitudes of his life, was naturally never satisfied until she likewise was proclaimed his fellow sovereign and wore a brass plate. At first he treated her pretensions with complete and profound contempt, but his better half had all the persistency of her charming sex and eventually won her ends and the royal title, which she wore with becoming grace. Within liberal limits His Majesty appreciated the fascinations of the bottle, and here again Her Majesty claimed full rights and suck for suck. He was fond of warm apparel and good living, and was very lazy, but he fully recognised the importance and necessity of the lighter work of the station being faithfully carried on—by his subjects. The real hard laborious work he considered ought to be done by "stupid walk-about whitefellow." He would see that some "boy" was off at early dawn for the horses, and if instructions were imperative, and no one else available, he himself would bring up the dairy cows—when the sun had properly warmed the atmosphere. Still he was a valued institution, and the Manager could have better spared a better man.

Jemmy, like many better heads, was hazy on the currency question. Of gold and silver there was not much on the Upper Darling, but he could not see why there should be any difficulty to a man possessed of a cheque-book. Are there not those in civilised life who also look upon that article as a boundless source of wealth? To him it was simply sitting down and scribbling a few lines; and why any reasonable man should demur to that small trouble was incomprehensible. To every objection to meet his demands he invariably replied, "What for 'no?' that one only makum paper." After a number of young men had been down with stock to Adelaide or Melbourne, Jemmy conceived it necessary to his dignity that he should go. Opportunity offering he went; but the mob of cattle was sold at Swan Hill, and he returned with the drover from that place. He was quite satisfied, and ever after he considered he had been to the Queen of the South city. When any doubt was expressed he retorted, "Wan Hill close up Melbourne."

The relation of a short incident that occurred will give some insight into his character. Sitting writing one day I heard Miola call "Book Borce," "dead whitefellow." And through the open door could be seen floating down the river the body of some unfortunate wretch. Only Jemmy and a strange "walk about" were available. With them I followed in a boat and drew the corpse to land. It was not a pleasant office. Almost naked, the clothes were fastened by a belt round his waist, in the trouser pocket were a few shillings and a knife, on his feet a pair of tolerably good boots. We dug a grave (a very shallow one), and hid him away. Before doing so the white man proposed taking possession of his boots, while the black man turned disdainfully away. He, at last, would touch nothing that belonged to the dead stranger.

According to the customs of the Parkingees plurality of wives was allowed, and James, like many another monarch, had an amiable weakness for the adorable sex. There was a tawny charmer, of whom he became enamored and desired to make No. 2, which No. 1 as strenuously resisted. In the crisis I was appealed to. The strict letter of the law was undoubtedly with the monarch, to say nothing of the suggestive waddy he bore. But what wife in such circumstances regarded the one or the other? Queen Polly defied both, and the King submitted. I cannot dismiss such an exalted character without a brief summing up of his virtues. As a wise ruler should, he understood the signs of the times and adapted himself to them. He was a good husband and an indulgent father, a fair catalogue for any man; but there is something more. The act for which he most deserves to be remembered was begetting Miola, the flower of aboriginal maidens.

Warlo Jack, surnamed the Silent, was the brother to King James, but unlike as brothers can be. Little over the average height, and slightly, even elegantly, built, he was the very figure to make a good horseman, a promise amply fulfilled, for Jack not only could ride with consummate coolness and ease any horse that was ever foaled, but he had excellent hands as well. With horses he was invariably gentle and kind, though his temper was naturally vile. As a tracker I never knew his superior—patient, persevering, once on the trail he stuck there if it took a week to run the quarry down. Day succeeding day I have been with him, suffering hunger and thirst, admiring, fuming, storming, occasionally maybe mildly swearing—for some bushmen have acquired that naughty habit—but the taciturn John kept on, his eyes bent on the ground, scarcely speaking a word from dawn to dark. To his master he rendered a willing obedience, but from no other would he take orders, nor was compulsion easy, as he was ever ready to fight.

Kitty (she and Jack were both Keelparas, who cannot inter-

arry—according to the laws of the race, a Muckwarra must marry a Keelparra, and *vice versa*) was a widow, and in accordance with the laws of the tribe on the death of her husband she became the property of his brother Billy, otherwise Manum. Neither youthful nor elegant like Jack, but elderly, thickset, and exceedingly muscular, what woman with a particle of taste could hesitate between the two? Kitty set the whole community at defiance. To the commands of the elders and chiefs, the postulations and entreaties of her kindred and friends, she turned a deaf ear, and to the waddy of Billy a thick head. With the charming constancy and admirable good taste of woman she could, and ultimately did, have the showy youth in preference to the adult, staid man.

An early swimming adventure with Jack is not without interest. During a high flood in the Darling when much of the country was submerged it became necessary to cross a number of cattle locked on a sandhill by the waters, over a broad billabong to the back country. There were no boats in those days at the station; nor had we a bark canoe; our horses we did not want to cross, so we sent them home when the cattle were over. There were three of us—Jack, my friend, and myself, and it was our business to get over that wide belt of water and take our clothes with us. These, boots and all, we each made up in a bundle and tied on our heads. Then we came to a tree standing some distance out, its branches above the stream. That haven we reached merrily, and rested, or posted on the boughs for a while surveying the prospect; and no longer we looked the less at least two of the party liked it. It was cold, and the bark of that tree the roughest I ever felt, and we were not the only unfortunates who had sought refuge there from ants, centipedes, scorpions, ferocious man-eaters of all kinds bent to make a meal of us. Jack soon had enough of it, and watched him stem the tide, and a long way it seemed even to that accomplished swimmer. Then rather than be eaten alive I followed, my friend doubting his powers. For a time it was easy enough, but in the midcurrent there was quite a sea caused by the wind meeting the stream, and, being weighted by a considerable number of garments, which soon became heavy with water, I was badly buffeted about, and began to think the other side further away than ever. To throw the clothes off without losing them and prospective nakedness for an indefinite period, so I struggled on in the same spirit as actuated an old friend who was once precipitated off a steamer into the Darling without a moment's warning. He first went to the bottom, in surprise not making a kick; then he thought it was time to do something, and though he could not swim a stroke he struggled to the surface, where he spluttered "I won't be drowned; I'll be hanged if I will," and so managed to keep up until fished

out. There was no one to fish me out, nor was it needed, for when through the rough water the rest proved comparatively easy. While still in difficulties my companion some distance behind called out that he could not do it, and when I turned to look he had thrown his bundle away and was floating down the current on his back. Meantime Jack was over, and the moment he knew the position of affairs he sprang from the bank, shot along like a copper-colored streak under the surface almost the whole way, and came up under the drowning man, who then coolly placed his hands on his shoulders, and so together they came safely through. Nor was this all. The grand swimmer then ran down the stream a considerable distance, plunged in, and returned from a long dive triumphantly with the saturated bundle of garments. The whole thing was splendidly done, and probably struck me the more because at that time I had not gone through the numerous water experiences familiar to later days.

Jack merely laughed in his quiet way at the adventure, and being young, I possibly eniggered a little, but my friend bore a serious face for the rest of the day, nor do I think he ever tried such a feat again. It is, perhaps, not out of place here to say that though a fair swimmer, there was not one sound man, woman, girl, or boy beyond the age of an infant who could not swim rings round me. They were simply magnificent in the water.

Dick (Watulganya) was my first black boy—that in the bush means personal attendant. He early attached himself to me, why, it is hard to say, for the position entailed much hard work which never agreed with him. He was unquestionably in one respect the most remarkable aboriginal I ever met. Absolutely the only coward I have known of the race, and his cowardice was of an utterly abject description, for he felt not the least ashamed of it. His temper was good, for the simple reason that he had not the spirit to resent anything. When I had learnt to ride he dare not get on a horse if it looked back at him, and when on he tumbled or jumped off if it gave a frisk. No amount of chaff, abuse, or contempt would induce him to leave the stockyard fence if the cattle within were anything more than the milking cows or the working bullocks. In person he was well and strongly made with the exception of his legs below the knees, the bones of which bowed forward as much as his calves projected behind. For this peculiarity he acquired the title of "Boomerang shins," much to his disgust. Vain as a peacock he was a great beau, ever decking himself out in gaudy colors. Always to the front in a corroboree, he never took part in a fight in his life; always a butt, though somewhat liked. Yet all his airs, graces, blandishments, and repeated endeavors did not help him to a lubra. Ever in love and ever

vain, he once appeared on the verge of gaining a blooming bride, the young and really attractive, sporting Barney, full of fun and frolic. She was a native of the Upper Paroo, and he had the halo of being a showy stranger, a horseman, and consequently a hero. The other swain, commonplace, quiet Ben, was only a shepherd, but withal worth a score of Dicks. Barney was attracted, tempted by the superficial visitor for a time, but presently his blandishments fell flatly, and with the good sense invariably displayed by the young and beautiful she stuck to the substance, as represented by plain Ben, and allowed the alluring shadow to depart. Dick pulled a long face, and talked big about fighting, and that was the nearest approach to bloodshed his ardor ever carried him. As for Ben and Barney in a few years both were dead. Both looked strong, yet they quickly trod the short path to the grave the colored race of Australia seemed destined to follow. Ben with characteristic superstition thought an enemy had made a bone and was killing him; anyhow he said he was dying, and he did die, and Barney quickly followed, too quickly to give expectant Dick a chance to console her.

Before replacing Dick by a more reliable attendant I took some long journeys with him, when it became evident that he could not track a wagon. On one of these excursions (it was before the invention of canvas waterbags) we only had a very little canteen, which Richard carried. Riding in front I chanced to look back and caught my faithful slave drinking up the last drop of water. Being caught in the act lying or evasion was in vain, but he felt no shame, merely observing that he was very thirsty. Yet with all his mean and contemptible qualities I liked the transparent humbug, and having to drive a mob of fat cattle to Adelaide took him with me. After that he absolutely swelled nearly to bursting with pride, and never ceased to expatiate upon his exploits. Years later he came again, and stayed at Burnside some weeks. Week-days he "did the block" about the city, and on Sundays regularly stalked off to the local chapel, carrying a white umbrella to preserve his complexion, "an example to all," as a regular attendant observed.

Paddy was little more than a dwarf, but he possessed the soul of a hero. My introduction to him was in this way. In those days when the unknown stretched before us one's instinctive desire was to explore it. To the north-west, where the Mount McPherson Range is lost in dry waterless tableland, a large area of untraversed country lay. Of this the blacks told many tales sufficiently attractive to excite the ardor of a keen bushman to examine it. A friend, myself, and a young blackboy named Tarcoo, who had seen part of the unknown region, started out fully armed with revolvers and rifles, expecting great results. Our discoveries, however, were of no importance, simply because there was nothing to discover. I forgot—we discovered Paddy.

We were riding over some open country, when out of a grove of bushes sprung a small slight figure not more than about 4 ft. 6 in. high, with limbs of the thickness of pipestems or perhaps walking-sticks, armed to the teeth with spear, boomerang, and shield. Gesticulating fiercely, he barred the way. Our boy Tarcoo shouted something, and the diminutive warrior lowered his weapons, though he still stood on guard. Then several women came forward and conferred with Tarcoo, and after a considerable yabber yabber a number of ambushed men presented themselves. Before these the boy, according to the custom of his people, sat silent waiting to be questioned. Friendly relations were ultimately established, and in return for the gift of an emu we had shot and left some miles back they gave us a couple of native hens, which we greatly preferred to emu steak. Some years later Paddy came into the station, but he never submitted kindly to the white man's sway. His weapons scarcely ever left his hands, and he soon pined away and died, bearing to his grave an unquenchable antipathy, which he never cared to conceal, to the Boree. He left a brother, Ugly Billy, who figures elsewhere, behind him. Some years afterwards I was out in that country again and met a squatter who had stocked some leaseholds we had taken out. He told me that a black-fellow then with him had described his first meeting with white men, and the terror of himself and companions on seeing them riding across a plain towards them like "great big emus." I looked up the aboriginal, who recognised me at once. He told me how in their fright they had hidden, and that when we left they ran our tracks back and found the shot emu.

Tarcoo, taking him altogether, was the smartest aboriginal I ever knew. A mere child when I first met him, he grew into a fine strong man, not only a perfect master of all the weapons, exercises, and accomplishments of a native warrior and hunter, but a good rider, tracker, swimmer, and the fleetest runner except Peter, of the whole tribe, and yet the muscles of one leg seemed shrunk. One was certainly less than the other, said to be the result of a severe burn when an infant. Tarcoo could speak English well, was very intelligent, and a splendid worker at almost anything he could be put to. His temper was not amiable, consequently he was not a general favorite. Nothing he loved so much as manly games with his fellows except a downright fight. Then he appeared in his glory. On one occasion he had a quarrel with his uncle, a man not much older than himself, and for a time I did not interfere. King Jemmy urgently requested me diplomatically to take no notice, as he would take care that nothing serious occurred. "Better let Blackfellow fight sometimes," said His Majesty. When I did go up to the camp the elder combatant had a spear through his thigh, several severe cuts

from a boomerang, and numerous contusions from waddies. He still stood up, occasionally hurling a weapon at his opponent, who evidently considering the battle won scorned to return a blow. There he stood covering himself with his few inches of shield and waddy, sometimes erect, again crouching down to the smallest dimensions, but always bold and defiant. Hit him? Simply impossible, the showering spears, waddies, and boomerangs glanced harmlessly from shield and guarding weapon behind which appeared his exulting face fired with the fierce ardor of battle. In love he was fortunate since the fascinating Miola became his wife, and a good wife she made him.

Miola stands out as the most striking character I have ever known among the aborigines. No other has approached her in manners, appearance, or ability—indeed among any people she would have excited attention. The daughter of their majesties James and Mary, she always remained about the head station and grew up with the white children there. With them she learned to both read and write a little, sew, cook, and perform household work as well as the average white servant. Her appearance was remarkable. Above the average height of her countrymen, her upright carriage made her look taller; curly black hair, splendid dazzling, white, regular teeth, great brown eyes; a velvety, copper-colored skin, and a voice musical as a bird's. Surely that enumeration is sufficient to excite interest. Yet more may be fairly said of this interesting girl. Brightly intelligent and capable, while true and faithful to her people, she had the ambition to lead the higher life of the European, and was never content when grown up until a hut was built for herself and others. For a long time she kept this clean and comfortable, but in the end the habits of the rest were too much for her. From her youth she was destined by the custom of the tribe to be the wife of Tarcoo, and ultimately she married him, though that meant going back to the blacks' camp. He was both fond and proud of her, and she returned his affection. They had one child, a bright merry little fellow. Some years later poor Miola met the early death that seems the fate of the best of her people. She died lamented by all, and I am sure that her memory is yet green, and that all who ever knew her would speak kindly of her. She figures in "Paving the Way," and her character is in no respect overdrawn.

Sketches of "Some Aborigines I have Known" would not be complete without some mention of Baldy, the chief of the Upper Paroo tribe. For years an outlaw by the whites, he, when his life would have been perfectly safe, determinedly refused to yield. When I first went up with stock into country on the Queensland boundary, Baldy was spoken of as the leader in every outrage, and no white man's life

was considered safe if in his power to take. A neighboring squatter, who had narrowly escaped with his life from a hand-to-hand encounter with him, vowed that he would hunt him to death. Doubtless the black chief was quite as determined to kill the white man, particularly as on the last occasion he had got the worst of it, if a ball through his body reckoned for anything. The indomitable outlaw, however, thought little of such trifles as leaden pellets in his person, and soon was on the warpath again, and probably paid back on some unfortunate the injuries he had received.

We took black shepherds with our sheep from the Darling and, as the tribes were very friendly, spoke the same language frequently intermarried, and, indeed, could scarcely be considered distinct tribes, we soon established amicable relations with many of Baldy's subjects, and put them on shepherding in place of the river men, who returned to their work at the home station. Our new employees never gave us the least trouble, and as soon as they understood that neither the Queensland police nor our squatting neighbor would bother them while in our country we had the whole lot at our service—good, bad, and indifferent—all except the redoubtable Baldy. I had messages sent to him to come in, that no one should molest him, but all in vain. I never saw him in all my rides, drives, or walks, nor did the overseer, who was constantly on the run for many years. Much of the country was densely covered with thick polygonum swamps, and we were well aware Baldy lurked there during the day, and late at night often joined the shepherds' camps. Sometimes he went out into back country away from the hateful white man, and lived the old hunter's life, obtaining water from the roots of the kurrajong-trees growing on the dry tableland to the west of the Upper Paroo. On an excursion out there on one occasion I saw his tracks and the thick roots drained of their contents. Probably the untamable savage was close by, maybe our blackboy even saw him, but Baldy would hold no communication with the white race, though in return for the protection given and kindness shown to his people he kept the tacitly understood truce. There were many similar characteristics in the two unbending chiefs Barpoo and Baldy. The former was the more diplomatic (forgive the word so applied) and abler chief; the latter the fiercer, more unyielding warrior or robber, if you will. He, too, has a place in "Paving the Way."

Before concluding I feel that I ought to apologise to many of my equally deserving aboriginal friends and acquaintances for not introducing them to you, but space would not permit.

PROCEEDINGS

OF THE

Royal Geographical Society of Australasia.

(SOUTH AUSTRALIAN BRANCH)

NINTH SESSION, 1895-6.

COUNCIL MEETINGS.

July 4th, 1895.

Present—Seven.

It was resolved that the fee for life membership be reduced £5 5s.

The Secretary reported the loss by death of the Hon. G. C. Walker, who had been a valued member of the Society from its early days.

Dr. J. C. Verco was elected a life member.

The proposed conversazione, on the arrival of Sir Thomas Swell Buxton, by the literary, scientific, and art societies was considered, and it was resolved that the President, Mr. Wilkin-son, and the Secretary be appointed delegates to a meeting of the societies with power to act.

August 16th, 1895.

Present—Seven.

The President reported on the intended conversazione by the learned societies of Adelaide.

It was resolved to take part in the same and to exhibit some objects of interest in the possession of the Society.

It was also resolved to address a circular to the members of the Society asking them to loan for the purposes of the exhibition, native weapons, curios, relics, &c.

October 24th, 1895.

Present—Seven.

Only formal business was transacted.

December 5th, 1895.

Present—Six.

The Secretary reported receipt of a letter from Mr. A. F. Calvert, of London, and now in West Australia, *re* the equipment of an exploring expedition in West Australia and to cover ground at present unexplored

Resolved, that the Secretary reply to Mr. Calvert that this Council will favorably consider any proposal submitted to them; and if Mr. Calvert should desire to fit out an expedition, they would recommend Mr. L. A. Wells or Mr. Chas. Winnecke as very suitable for the position of leader.

The President reported the receipt of a map from the West Australian Government showing latest data.

To be acknowledged with thanks.

Some old historic works were presented to the Society by Jno. H. Angas, Esq.; also, a pair of native death shoes by Mr. E. C. Clucas. Acknowledged with thanks.

Resolved—"That the thanks of the Council be tendered to the several gentlemen who had contributed to the display of the Society at the recent conversazione—viz., Messrs. Percy E. Hoare, W. P. Auld, T. Worsnop, A. T. Magarey, T. Gill, and the President."

March 31st, 1896.

Present—Six.

Mr. Magarey read correspondence with Mr. Albert T. Calvert, of London, *re* his proposal to fit out an exploring expedition to start from West Australia, to cover blocks of hitherto unexplored country. Mr. Calvert proposes to bear the entire cost of the expedition, and wishes Mr. Magarey to act as his agent in the matter.

Resolved—"That the Council approve of the correspondence on the part of Mr. Magarey, and that the thanks of the Council be accorded to him for the interest he has taken in the matter."

Resolved also—"That the Council, without accepting any financial responsibility, has much pleasure in allowing the expedition to be known as being under the auspices of this Society, and that the Council learns with pleasure that Mr. Magarey has

consented to act as agent for Mr. Calvert in terms of his letter dated February 4th, 1896, now read to this meeting."

The Committee of the project for the MacDonall Stuart statue wrote asking for co-operation.

It was resolved to accede to the request, and the President nominated a member of the Permanent Committee.

April 16th, 1896.

Present—Seven.

Rev. C. T. Newman tendered his resignation as Hon. Secretary owing to his leaving Adelaide for Kapunda.

Resolved—"That the Council accepts with much regret the resignation of Rev. C. T. Newman, and thanks him heartily for his past services."

Resolved—"That Mr. Chas. H. Harris and Mr. E. H. Newman be proposed at the coming annual meeting to act as Honorary Secretaries."

A letter was received from the Queensland Branch, dated February 13th last, suggesting the desirableness of making arrangements for an International Geographical Congress.

Resolved—"That this Council approves of the holding of such Congress, and invites further information on the subject."

May 8th, 1896.

Present—Seven.

The Assistant Secretary reported the death of Mr. T. H. Bowen, member of the Council, since the last meeting, and that a letter of condolence had been sent to Mrs. Bowen, signed by the President of the Council, expressing their sincere sympathy in her bereavement.

The President laid before the Council a letter he had received from the Hon. the Chief Secretary stating that the Government accepted with pleasure the plans and journal of the Horn Expedition on condition that they be printed as a parliamentary paper.

May 18th, 1896.

Present—Seven.

A letter was received from the Sydney Branch with reference to a proposed geographical journal.

To be acknowledged and the matter held over for consideration.

TH SESSION.

re Secretaries to inform the various
al Society in the other colonies of

ed that the Calvert expedition was
ek and that the necessary funds to
ed had been received in Adelaide.

19th, 1896.

ent—Eight.

n the Victorian Branch congratulat-
rting of the Calvert expedition.

the New South Wales Branch re
s again discussed.

ter be referred to a sub-committee
, Mr. Gill, Mr. Magarey, and the



ATTENDANCE ROLL

SESSION 1895-6.

COUNCIL MEETINGS HELD. 9.

S. Newland, J.P.	9
W. P. Auld	8
R. K. Thomas, J.P.	8
A. T. Magarey	8
C. H. Goode, J.P.	4
W. B. Wilkinson, J.P.	2
T. H. Bowen	5
C. H. Harris	3
J. W. Jones, J.P.	2
Thos. Gill	6
E. H. Newman	3
Rev. C. T. Newman (resigned April 16th, 1896)	6

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

ANNUAL MEETING.

The annual meeting of the South Australian branch of the Royal Geographical Society of Australasia was held at Union Hall on Friday evening, June 19, 1896. The President (Simpson Newland, Esq.) occupied the chair.

The HON. SECRETARY (Mr. E. H. Newman) read the annual report, which included the following:—Since the last annual report your Council has held nine meetings, and during that period eighteen new members have been elected, and one life member, viz., Dr. Joseph Verco. Your Council record with deep regret the death of two of their members—the Hon. G. C. Hawker, who had taken a deep interest in the Society from its commencement, and of Mr. T. H. Bowen, who had been a most active and useful member of the Council. Papers have been contributed and read during the last session by the following gentlemen:—Rev. J. Tuckwell, on the Recent Archaeological Discoveries and Inscriptions in Western Asia; Mr. A. T. Magarey, on Aborigines' Water Quest; Mr. Thos. Worsnop, J.P., on the Probable Origin of the Aborigines; Mr. A. W. Dobbie, on India; Mr. N. E. Philipson, J.P., on the Camels of South Australia, their History and Uses; and Mr. J. W. Chapman, Esq., M.A., on the Tides of South Australia. Your Council record with regret the resignation of their honorary secretary, the Rev. C. T. Newman, consequent upon his removal to Kapunda, who has rendered very efficient service to the society during the whole term of his office. Mr. Charles Hope Harris and Mr. Edgar H. Newman have been elected as joint honorary secretaries. As stated in the report of last year's proceedings Mr. David Murray was asked to represent

your society at the International Geographical Congress held in London in August. The Council learned with pleasure that Mr. Murray was present on the occasion, and they have expressed their warm thanks to him for so readily complying with their wishes. The meetings held, attracted considerable attention, both in the old and new worlds. A most interesting paper, and of special value to us, appears in the volume of proceedings on the recent investigations of J. Borchgrevink in his voyage to the Antarctic seas on board the *Antarctic*. It is hoped that the attention thus drawn to the Antarctic regions will result in the early dispatch of an expedition better fitted to cope with the dangers and difficulties inseparable from such an arduous undertaking. The southern branches of the Royal Geographical Society have always been alive to the importance of this laudable object, and have ever expressed their willingness to promote in every way in their power its accomplishment. The regions surrounding the South Pole present at the present time the most alluring field for the intrepid explorer, and we cannot doubt that within a short period extensive discoveries will be made, important to the world at large, and of still more vital importance to the country of which we form a part. During November last, this Society in conjunction with the various scientific and literary societies of Adelaide, took part in a conversazione initiated by his Worship the Mayor of Adelaide, C. Tucker, Esq., and which was held at the Exhibition Buildings, in honor of the arrival of his Excellency Sir Thomas Fowell Buxton, K.C.M.G., to assume the government of the province. The conversazione, in a scientific point of view, was a pronounced success, and the exhibits of our society formed an exceedingly interesting and novel feature in the exhibition, and attracted much attention. It is a matter of regret that the society has not been able to arrange for more fitting and accessible accommodation for the valuable collection and the library, than that existing at the only room at present at our disposal. Your Council received a letter from the Queensland branch of the Geographical Society in February last, suggesting the desirableness of holding an Intercolonial Geographical Congress, to which the Council replied approving of the proposal and inviting further information.

The Council have always fully recognised that one of its most important functions is to advance the exploration of the Australian continent. It is therefore with profound gratification they are able to confirm the intelligence already published in the press, that Mr. Albert S. Calvert, of London, author of the "Exploration of Australia," and other works, has fitted out and dispatched an efficient expedition entirely at his own expense, to complete the exploration and fill up the map of Australia. Mr. Calvert

is well known as a contributor to Australian literature. He has made several visits to the colonies, and has himself traversed a considerable portion of Western Australia. He is, therefore, well aware of what he is undertaking. Through his indefatigable agent, Mr. Magarey, he has requested your Council to allow the expedition to be sent out under its auspices and subject to its approval. Your Council have agreed to use its influence to promote the objects of the expedition, and to give its advice to Mr. Magarey on the arrangements which from time to time it may be necessary for him to make as Mr. Calvert's agent. Your Council feel that this report of the past year's proceedings would not be complete without special reference to a movement which has been initiated to collect funds to erect a fitting statue to the memory of South Australia's great explorer, John McDouall Stuart. The subject was brought under the notice of the Council and met with a hearty response, the originators being assured that the earnest co-operation of the South Australian branch of the Royal Geographical Society would be given to so desirable an object. The president was appointed to act for the society, and active steps are now in progress in furtherance of the desired end."

The HON. TREASURER (Mr. T. Gill) read the balance-sheet, which showed:—To balance in hand, £3 18s. 5d.; subscriptions, 266 3s.; special collections, £3 5s. 5d. = £78 6s. 10d. By payments for the year, £77 9s. 2d.; balance in hand, 17s. 8d. = £78 1s. 10d.

The CHAIRMAN, in moving the adoption of the report and balance-sheet, said the objects of the Society were to obtain and disseminate information about all Australian geographical matters and also about those of other lands. During the past year the Council had had to deal with very important matters. The Calvert expedition had been started on its journey of discovery, and he was sure that in Mr. Wells they had a leader of aim, enduring courage and determination. He saw present to-night Mr Mayo, one of the two survivors of the McKinlay expedition. He was sure the proposal for a statue to John McDouall Stuart would arouse more and more enthusiasm as it proceeded, and that they would yet have a grand statue of the explorer. He regretted that the monument to Colonel Light did not occupy a more central position in the city. In the late Hon. G. C. Hawker they had lost a valuable member, a well-known pioneer squatter and legislator. Mr. Bowen, whose death they also had to deplore, was an active member of the Council. He hoped the Society would do something to prevent the rapid extinction of native birds. Bush fires and the spreading of poison for rabbits had doubtless destroyed many of these birds. Stringent measures should also be taken for protecting the cray-

fish in our creeks, and also for the preservation of young fish. He returned his thanks to the members of the Council for the kindness and assistance during the past year. Mr. Reed had been a most indefatigable Assistant Secretary.

The Rev. J. T. ROBERTSON seconded the motion, and pointed out the responsibility which rested on Australians to co-operate with the mother country in exploring the mysterious circle around the South Pole. The recent experience of Captain Christensen, who reached 76° of S. latitude, and saw open sea to the south of him, showed what might be done, but unfortunately his was a commercial and not a scientific expedition, and he had to turn back. He hoped to see the great countries of the world join in establishing meteorological stations in the Antarctic regions. The result of enquiries made some years ago showed him that the best catches of whales and seals in the Arctic seas are made every nine years. Now, twice 9 is 18, and it was interesting to note that Mr. Russell, the Government astronomer of New South Wales, has recently calculated that the world's weather has a periodicity of 19 years.

The motion was carried.

Mr. J. W. JONES moved—"That the officers for the ensuing year be—President, Mr. Simpson Newland; Council, Messrs. A. T. Magarey, C. H. Goode, J. L. Bonython, R. K. Thomas, W. P. Auld, A. W. Dobbie, and Dr. Perks; Hon. Secretaries, Messrs. C. H. Harris and E. H. Newman."

The motion was seconded and carried.

Mr. F. BASSE moved and Mr. A. McDIARMID seconded a vote of thanks to the Council. Carried.

Messrs. C. Sabine and L. H. Sholl were appointed Auditors for the present year and thanked for their past services.

Mr. E. B. LUCAS displayed some interesting diagrams drawn by himself, to show the extent to which the different systems of weights and measures are used throughout the world.

Mr. C. H. HARRIS spoke on "South Australian Nomenclature." He urged that the Society should, as far as possible, lend itself to the investigation of our local names, which were intimately connected with both our history and geography. Each native name had its own history and meaning, and to place them on record (as the men who possess the unwritten information are fast passing away) was a duty which we owed to posterity. For instance, he had found the opinion generally held that "Barossa" is a native name, but enquiries proved that the ranges were so called by Colonel Light after one of the battles of the Peninsular war. Humbug Scrub was so called by Colonel Light because after that battle they were much annoyed by the guerilla warfare of their opponents. "Mount Coffin" in the Flinders Range had been called after a member of his party by Mr. Samuel Parry, the surveyor, in 1858.

Curious changes were sometimes made, as when "St. A'Becke Springs" became in the mouth of the teamsters "Sandy Bag Springs." He hoped they would all aid in the work of collecting information about our nomenclature.

Mr. A. T. MAGAREY urged the desirability of giving South Australia a new name as the present one was geographically misleading. He would like to see an effort made to obtain public suggestions for a new name, which should be appropriate, euphonious, and, if possible, of native origin. Subsequently the Legislature might ratify the choice of a better name for the colony. He suggested that the memory of the explorer Sturt might well be perpetuated by a granite monument at Goolwa, and that of Flinders by a marble slab let in the trigonometrical station at Mount Lofty.



PAPERS

READ BEFORE THE

Royal Geographical Society
of Australasia.

9th SESSION. 1895-6.

SOUTH AUSTRALIAN BRANCH.

Australian Aborigines' Water-Quest.

BY A. T. MAGABEY, Esq.

Read June 28th, 1895.

In gathering information as to the aborigines' water-quest in arid Australia, I have to acknowledge indebtedness to the works of most of our greatest explorers; and also to the works of Baron Sir F. von Mueller, F.R.G.S., F.R.S.; to Mr. Maiden's work on Australian flora; to Tom Brown, Esq., Nullabor Plains, South Australia; Charles Winnecke, Esq., F.R.G.S.; Edgar Giles, Esq., Ediacara; Simpson Newland, Esq., Adelaide; J. W. Jones, Esq. (Conservator of Water); W. H. Tietkens, F.R.G.S., New South Wales; D. Lindsay, Esq., F.R.G.S., Explorer; R. Helms, Esq., Naturalist E. E. Expedition, New South Wales; late G. W. Goyder, Esq., C.M.G.; C. Hope Harris, Esq., Adelaide; Walter Gill, Esq. (Conservator of Forests), Adelaide. I have also received the testimony of aborigines and bushmen, and in some directions have made personal test and experiment.

"It was often a matter of wonder to me that in the height of summer, when the heated ground was shimmering under the blinding rays of the summer's sun and

When the Simoom's breath was scattering death
On all that yet could die.

When you would think it impossible for mortals to live away from the one water, yet away in the horizon's distance, in a country that you have visited repeatedly and know to be absolutely waterless, a column of smoke will arise. 'How can this be?' is the exclamation that escapes you. Even with the wonderful powers of endurance of the Australian aboriginal how can he be out there and live? The half-civilised savage at your side, upon enquiry will reply, 'He is all right! That is so and so,' mentioning the name. 'He got tree-water.'" (W. H. Tietkens, F.R.G.S.).

"The explorer is necessarily insatiable for water; no quantity can satisfy him, for he requires it always and in every place." Thus writes Ernest Giles, one of Australia's indomitable explorers.

"Doing a thirst" is a recently coined expression of bushmen in the newest gold region of Australia, and means suffering the

treme of privation and risk through lack of water whilst in the eager pursuit of gold. And to an exhausted bushman gold is infinitely less precious than water, for then water means life. Now, in such arid regions, to know where water may be found, and with almost absolute certainty to obtain sufficient for life—giving it is the purpose of this paper to show, as lucidly as limited space permits. The lesson is learned from our aborigines, who live, and love, and roam, and hunt, and pass away in their waterless wilds—waterless to the untaught white man. The Australian aborigine, dwelling as he does in realms where water is scarce, has through the long ages during which he has named his desert wilds, stored up much valuable knowledge as to water supply. This knowledge has passed down from generation to generation, and, having come, the white man too, has inherited much of the treasured lore. Unfortunately, however, this knowledge many bushmen are still ignorant, and to many ignorance has meant death. Men in Australia have lain down under a "water-tree" and died from thirst, whilst the water they terribly needed lay only two or three inches under the arching sand, and beneath their outstretched finger-tips. Sad, but true; and the pity of it was that they did not know that the water was there. The aboriginal knows better. Trees, animals, birds, insects, and rocks all yield up to the aborigines of these lands their rich secret of water supply. Of these this paper will treat in detail. "Water-favored" Australia lies outside the scope of this writing. Hence, what follows refers specially to "arid" Australia.

Briefly let us pass in review the guides to water above enumerated, but including the aborigines.

FOREST LORE.

The mallee, needle-bush, currajong, casuarina, mulga, acacia, and young growth of gum are the best of the "water-trees," storing up supplies in root and stem, the root being most often the source of supply in our arid regions. These trees grow usually in a loose, soft, dry, sandy, or loamy soil.

The MALLEE.—The mallee scrub of our arid regions consists mostly of *Eucalyptus*, *dumosa*, *E. gracilis*, *E. incrassata*, *E. oleosa*, *E. microtheca*, *E. paniculata*, *E. populifolia*, and *E. cinerea*. Of these the water-trees (or water-mallees) are *Eucalyptus microtheca*, *E. incrassata*, *E. oleosa*, *E. paniculata*, and *E. populifolia*. *Eucalyptus microtheca* is so named from the extreme smallness of its seed vessels; called also water-box. Large specimens grow up to 80 ft. in height, with stem 4 ft. in diameter. Named by the natives of Riverina, Tangoon; of Murchison, W.A., Callaillo or Yaltboo; of Western Queensland, Cooly-h. *Eucalyptus incrassata* flowers from growth of 4 ft. in height, grows up to 80 ft. Bark smooth, outside whitish or

reddish color, the bark seceding, so rendering the surface smooth. Seed vessels markedly "ribbed," as shown in Figure 1. *Eucalyptus oleosa*.—The leaves are oil-bearing, tall bushes, branched from the root, height 15 ft.; bark of young trees smooth and pale. Seed vessels have a bell-clapper-like pistil which is characteristic (see Figure 2). The roots of these water-mallees are of incalculable value to the natives, since it is through their thorough reliableness as yielding abundance of water for their needs that the aborigines are enabled to go far away out into the arid wilds, there to roam and hunt and gather food with the utmost liberty and confidence. The roots of these water-trees run out from the stem for 40 ft. to 80 ft. and lie at a depth only of from 2 in. to 9 in. below the surface of the ground. The position of these lateral roots is frequently marked by a "rise" or "bulge" of the soil right over the root. The roots are easily raised. A native goes up to a water-tree and tries the ground at from 4 ft. to 5 ft. from the stem, or, if guided by a "bulge" or a "crack" (the crack sometimes almost as fine as a hair, and scarcely visible to the untrained eye of a white man), finds the root at once. If the ground is hard the soil is usually scooped away from over the root with his wooden shovel, until it has been bared all along its length. If the soil is loose he drives his yamstick, or spear-point, into the ground, prises the root up, and thus breaks it off near the stem. Then, dropping the spear or stick, he grasps the root with both hands, and, straddling its bed, shakes and pulls up the root to its point. Then, breaking it into lengths of 18 in. to 3 ft., he sets the pieces on end against the trunk, standing them in a coolamin or a wallaby-skin bag, or in a trough formed from the bark stripped from the roots, by which bark-guttering it is conducted into his water-vessel. Roots the size of a man's wrist are best, though roots from $\frac{1}{2}$ -in. upwards are good. If larger the root is apt to be too woody, and the water does not flow freely. Should the native hunter be very thirsty indeed a portion of the root is broken off; whilst the bark near one end is removed so as to give only clean wood for the mouth. The piece of root is then upended, the water flowing freely into the hunter's thirst-dry mouth; another and another stick being similarly raised as each is drained, until the thirst is assuaged. One such long-stretched mallee root usually will suffice to satisfy the wants of two or three thirsty men. For purposes of water-carrying one end of such sections of root is at times plugged up with clay, and in this way water may be carried, retained in the root, for long distances. If need be numbers of pieces of the root are placed horizontally in a coolamin, and so carried, the water not flowing out when in this position, but flowing readily when upended. Should the water upon upending the

not spontaneously flow freely, the native hastens the process vigorously blowing at one end. He sometimes obtains the water by shaking (as we swing a wet umbrella), when the condensed water comes out like fine rain. The bark is generally peeled from the roots so as to give perfectly clean and pure water. Each such mallee tree has usually from four or five to eight sideroots running out from the stem at a few inches depth from the surface. Trees growing in hollows between the long rolling ridges will have a greater abundance of water supply in their roots than those growing upon the tops. The sap flows most freely during the spring and summer season, when the greatest demand is made upon the tree to supply the stress of the rapid evaporation. Examination and experiment demonstrate that there is far less flow of water in the roots in the cool season. In the desert of South-Western Australia the explorer Eyre saw the natives obtaining water from roots only one inch in thickness, the surrounding soil being dust dry. (Ed. John Eyre, vol. i., pp. 349-351). The mallees of the West Coast (South Australia) always have many roots; quantity more abundant in the rainy season than in summer. This red mallee of those regions is evidently porous. Gallons of water may be obtained from their roots. It is always safe as concerns thirst with the red mallee to him. It is a permanent water supply. From the roots of a microtheca a quart-potful of water was obtained in half an hour. The water thus obtained is beautifully clear when first obtained, deliciously cool, forming a most palatable and refreshing drink, free from any unpleasant taste. From the red mallee water obtained, after standing for some hours, becomes discolored (reddish-brown) and turbid. The red mallee root of the west coast of South Australia is very porous, the water running out at once when the root is set on end. On the Darling Blocks, south-west of New South Wales, the natives make high stacks, 4 ft. or so, of the drained roots; why is not known. Natives sometimes travel from Fowler's Bay to Eucla in dry seasons, back from the coast through the scrub country, dependent mainly on mallee water. Round about Ooldea, S.A., W. H. Tietkens observed the same facility of dependence of water supply upon the water trees. This red mallee is found usually in clumps all over the dry parts of Australia, from the Darling River to the Musgrave Ranges, and from the coast of Western Australia through the Nullabor Plains to the Murray, and north to the MacDonnell Ranges. Information concerning Central Western Australia in this respect has not yet been obtained. It occurs frequently immediately north of Adelaide, and all through the Murray scrub east of Adelaide.

THE NEEDLEBUSH (*Hakea leucoptera*, "white-winged seed").

is found very generally all over Australia. Its usual height is from 5 ft. to 8 ft., though full-grown trees attain a height of 80 ft. The diameter of the trunk of the small variety at the base is 8 in.; the trunk usually is quite short, and from this point it "forks." The wood of the Needlebush is porous and spongy, similar to that of the honeysuckle tree. The Needlebush is one of the very best of our "water trees," the roots being water-bearing, although it does not in this respect equal the water mallees. Mr. Morton Lockhart says of it:—"In an experiment on a water-yielding 'hakea,' the first root, about half an inch in diameter, and 6 or 8 ft. long, yielded quickly, and in large drops, about a wineglassful of really excellent water (Proc. R.S. Vict., 1860, p. 132)."

The CURRAJONG.—The currajong (order Sterculiaceæ, genus *Brachychiton*), of Central Australia, is a most reliable water tree. It grows well in dry country, and is there usually abundant. It is known in some parts as the bottle tree from the shape of its stem. Evidently there are several varieties named currajong. It occurs in the Murrumbidgee country, in north-western New South Wales; on the Paroo, the Finke, and the Cooper, in Western Australia, towards Queen Victoria Spring (i.e., in the Great Victoria Desert), and through the northern region of South Australia. It is specially excellent as a water reserve. The tree has several large roots, sometimes attaining to a thickness of seven inches at the trunk-end of the root. The roots are very porous, and frequently contain incredibly large supplies of water, which gushes out when the pieces of root are set on end, the roots of the tree yielding gallons of water. In some regions natives subsist wholly on this source of supply.

The DESERT OAK (*Casuarina Decaisneana*)—the sheoak class of South Australia.—The *Casuarina* is a water-storing tree, both in its roots and also in the cavities which frequently occur in its stem. The latter being a special peculiarity of the tree (see seq. Hollow trees). Referring to the *Casuarina* and its water value, Mr. W. H. Tietkens writes:—"Ooldea Water, region S.A.—Travelling once with a small native boy of about ten years of age, and towards the close of a dreadful day, the waterbag long since emptied and the boy gasping for water, and myself no better (the boy was riding a very unusually tall camel, we still had fifteen miles more to travel), all at once a cry broke from him, and with one bound he was off that camel and running towards an oak tree, well four chains distant at least. I stopped the camels and went up to him. He was clawing away at the hot sandy soil, and at last—snap. A root one and a half inches thick was broken, a hard pull, and about eight feet of root was exposed, lifting the soil as it was raised. About two feet length was broken off and upended into the

mouth, and a cold drink the result. But not sufficient another and another length was broken off till we had sufficient. We did not take any more than one root, and I think there were eight or ten more such roots—enough in abundance for a dozen men. . . . The water so obtained was cool, quite cool, colorless, and refreshing, but I have noticed that upon exposure to the air for a few hours it becomes a pale-brown color, such as would be noticed in water into which a piece of bark had been dropped."

BLOODWOOD (*Eucalyptus terminalis*, of Central Australia).—The bloodwood also is a "water tree;" several Australian explorers refer to its qualities in this connection. Mr. W. F. Tietkens says of it:—"I have myself obtained nearly a bucket of water from the bloodwood tree at the Rawlinson Range. I was cutting this tree down for smokehouse purposes, and the water was not required."

ACACIA.—Several varieties of acacia are referred to by explorers and bushmen as "water trees," the roots yielding a fair supply.

As good indications of the presence of water, the following trees are noted by explorers and others, *e.g.*:—Beefwood (aborigines' yarra), L. A. Wells, E.E.E., p. 163, Western Australia; black wattle, D. Lindsay, p. 29; gum trees, large size, p. 39; pig-faces (plant), J. McD. Stuart, p. 3, "contain a great deal of moisture, and are a first-rate thing for thirsty horses." W. P. Auld says of the plant:—"The members of Stuart's expedition named it 'squash.'" And Mr. Auld states that eaten as a vegetable it is a splendid thing to cure scurvy.

PARAKYLIA, another name for "Muneyeroo," a *Portulacca* (variety of ice-plant).—Abundant in many parts of arid Australia. It is a good source of water supply for camels. Mr. D. Lindsay (E.E.E., p. 10) says of it:—"A moist plant; as good as water." The *South Australian Register* of 4th December, 1894, reports that an Afghan, who had been most dreadfully injured by his camels, thirty miles west of Ann Creek Telegraph Station, had subsisted through several days of agony and terrific heat upon some parakylia, to which he had managed to drag himself, and was saved from death through the supply of water yielded by that plant.

STEMS OF TREES AND WATER STORAGE.—The stems of several varieties of trees, when not too old, yield good and sufficient supplies of water for life-saving. Young gum trees, stringy-barks (*E. obliqua*), and varieties of mallee are used by the aborigines for this purpose. The young growing trees are broken off from their root, and the top removed. The root end of the sapling is placed uppermost, and the stick, set thus on end, to drain into coolamin, billycan, or other vessel. In from ten to twenty minutes, from several such sticks, a quantity of

water sufficient to save life is easily obtained. This statement holds good with due qualification as to locality, but a bushman might always make the experiment, if other resources fail, of in this way trying to obtain water before giving up hope and effort and abandoning himself to despair. The water obtained thus is cool, clear, palatable, and refreshing.

HOLLOWS IN TREES.—A highly valued branch of the aboriginal source of water-supply exists in the storage of water in the hollows of trees. Natives are enabled by reliance upon this supply to make very long stages through otherwise waterless areas. Such water storages occur far and wide all over Australia. In the cavities of the desert oak (*Casuarina Decaisneana*) more frequently than in any other is this supply found. In the forks of this tree there frequently exists a cavity of larger or smaller capacity, with usually a very small orifice. When rain falls the rainwater runs trickling down the limbs of the trees to the fork, and some of this finding its way through the orifice into the cavity, gradually the cavity becomes full, and hence the aborigines' supply. These hollow trees are as well known to the aborigines of the region as are the native wells and rockholes. They are pointed out to friends and to whites. The water stored is cool and pleasant. Being inaccessible to birds and animals the water is both fresh and clean. Sometimes there may be even two or three such cavities in the one tree. The supply may be within reach from the ground, or it may be necessary to climb high up into the tree for a drink. The storage chamber may be a cavity between the inner and outer shell of the trunk, or the carefully-lined hollow of some patient borer of wood. At times the water is stored in the cavities of decayed trees or in spouts of dead limbs. Mr. David Lindsay (*E.E.E.*, p. 129) describes a lubra in Western Australia discovering such a stock of water in the forked limb of a tree growing on the edge of a salt lake, her attention having been drawn to the tree by a moving rush of small ants, the tiny creatures rushing in and out of a hole in the fork of the tree. Upon testing the cavity with a dry stick, and finding upon withdrawal that the end was wet, she went to a bush close by. Breaking therefrom several twigs, and loosening their bark with her teeth, she withdrew the wood of the twigs, leaving the tubes of bark. Fitting several such tubes together she formed a pipe, which, being inserted in the reservoir she had discovered, enabled her to suck up the water and drink. The natives also used hollow stems of grass or hollow reeds for the same purpose. Again, a bunch or ball of dry grass is fixed to the point of a spear and thrust into the water-store. On withdrawal the water is squeezed out into a vessel, and the process repeated till sufficient is obtained. This last operation was seen at a cavity in a murn, or mallee oak, and is described by Mr.

ABORIGINES' WATER-QUEST.

one of the Philosophical Institute of Vic

Natives have been known to secure water in the trunk of a hollow "Black-butt" tree at the point of their yam-stick a hole being made in the hollow. They then "scored" the trunk so that the rain water ran down the trunk into this receptacle—so providing the native with a supply. Such reservoirs of water are used by the aborigines, are used by them year after year in the regions, because of their usefulness. These tree reservoirs are a well-known feature of the Plains country of South Australia. This is a box, but this term embraces several varieties according to locality, and is botanically incorrect. Information must be obtained upon the

and therefore necessarily somewhat obscure. The aborigines' forest lore in water-quest has led them from their observation of the birds to give notice.

BIRDS.

guides to water in very dry regions. Some varieties of these should be called "water-finders."

The diamond birds, known variously as the diamond finch, chestnut-eared finch (*Amadina melanotos*), stripe-necked finch (*Pardalotus punctatus*), stripe-breasted finch (*Pardalotus striatus*), Figures 3 and 4, are of birds which are water-finders of the dry regions of Australia.

... "And at eight miles or thereabouts we were delighted with the sight and sound of diamond birds, a *sure sign* (italics mine) of water."

All the foremost Australian explorers have noted the presence of flocks of zebra finches in dry country of the nearness of water. Hundreds of gallons or a teacupful of water, these little twitterers must have found often. Any apparent exceptions are due to the oversight or the hurry of the observer, or any fallibility of the bird as a water-finder. These little fellows (diamond finches) are seen sitting on the bare skin of a dead animal, or on the ground, or on the sand, or on the sand of a creek-bed for water. One states that they seem to be in no hurry to throw the sand over his shoulder as he worked. Nor does the native

resent at all the presence or familiarity of his trusting little feathered companions. He wants water, and they are waiting to drink with him. After travelling through miles on miles of the silent bush, should the traveller come upon a small flock of these birds he may know infallibly that a supply of water is near by, and alert intelligent watching will soon enable him to find it." "They must have water, and have it often, though maybe only a very little."—E. Giles, p. 98. The bird "nests" in rootholes in the banks of creeks and waterholes, and is abundant wherever water is available.

The PIGEON.—Next in value to the diamond bird the pigeon, in its Australian varieties, ranks high as a water-finder. The crested dove, wire-winged dove or topknot pigeon (*Ocyphaps lophotes*), the bronzewinged pigeon (*Persistera chalcoptera*), flock pigeon, and rock pigeon (*Petrophason*; Gould) all come under this section. The pigeon is found all over Australia, and is always within reach of water. It feeds upon grasses and seeds. It flies out over the plains to feed in the daytime, and flies in again to water at sundown. At sunset the pigeons in some parts may be seen flying in countless flocks, gathering in to the waters. So numerous are they, and dense is the "flight," that they are found at times in hundreds dead upon the ground by the telegraph line, being killed by flying into contact with the far-stretching wire—so numerous that it seems incredible. They fly very swiftly towards the water, and the pigeon usually alights some ten yards (often fifty yards) away from the water. It waits awhile, and then walks quietly to the water and drinks. The bird drinks very copiously, so much so that often after drinking it is a difficulty and trouble to it to rise from the ground. The flight away again from the water is heavy, and consequently slow, from causes above stated. An ordinary intelligent and alert observer can form a fairly accurate judgment from the style of the flight whether the pigeon is going to water or coming away from it, and in either case direct his course accordingly should he be in need of water. The bird does not drink during the heat of the day. Speaking of the rock pigeon, Leichardt writes:—"They live in pairs and small flocks; they fly out of the shade of overhanging rocks, or from the moist wells of natives, around which they cluster like flies around a drop of syrup." Stuart says:—"I observed very large flocks of pigeons coming in clouds from the plains in every direction towards the ponds. Some time afterwards we saw them coming back, and flying away into the plains as far as the eye can reach, apparently to feed."

COCKATOO.—The corella cockatoo (*Cacatua Gymnopsis*), white-crestless; galar parrots (cockatoo), rosebreasted cockatoo (*Cacatua Eos*), both abundant in places, are very good indications of available water supply.

CROWS, KITEHAWKS, and SOARING EAGLES also are indicators of water, but they are also often found to be unreliable, being seen far away from water.

EMU.—The emu (*Dromanius*), and laughing jackass (South Australia "Kooyana," *Dacelo gigantea*) are both unreliable as "water-finders," since like the dingo and the kangaroo they may be seen very far from water, subsisting upon the moisture supplied in the food eaten. In this respect these all greatly resemble the camel.

GEESE.—Geese flying low are a sign of near water, and are seen at times in very dry country, but with water in the vicinity (Leichardt, page 508).

ABSENCE OF BIRDS.—Stuart (pp. 285-291) says:—"We have met no birds that frequent country where water is." "The absence of birds proclaims it (Sturt Plains) to be destitute of water." The statement would refer to waters accessible to birds. There might possibly be root water or hollow-tree water available to the informed traveller. (N.B.—The presence of many birds of any variety is certainly a sign of presence of water in the neighborhood.)

ANIMALS.

KANGAROO, WALLABY, and DINGO.—There is considerable diversity of view amongst explorers and bushmen as to the true value of animals in the waterless regions of Australia as indicating nearness of water in such dry country. The truth seems to be that, whilst at times animals do serve as indications of the presence of water, they are at other times not so, but are untrustworthy and unreliable. A thirst-famished bushman may grievously suffer should he rely too greatly on signs of animals as indicating water. The animals named are capable of travelling very long distances into or through arid country and of subsisting for several days at least upon food eaten. Under such conditions even quite fresh tracks might lure a thirst-stricken bushman to his death should he follow them up too far, as their tracks have been seen often in well-known country several days' journey away from any known water. In very dry seasons the dingo (wild dog) will travel long distances over many miles to a water. They have been known, for example, to travel from the interior country down to the Great Bight (west South Australia), where upon the sea coast they will scratch with their feet in the sand of the shore, and so dig down to the fresh water to be found there. They do the same thing (scratch for water) in the creeks of the interior. Kangaroo and wallaby, too through obtaining sufficient moisture from the vegetable growth upon which they feed, may remain for some days or weeks, or even months, away from supplies of water, and so are untrustworthy as water guides.

INSECTS, &c.

Some forms of insect life are useful and reliable as indicators of the vicinity of water. Large and small red hornets and the mason fly (like a long-legged wasp, really a hornet) point to the proximity of water. Ernest Giles (vol. 1, page 95) speaks of the hornets, along with diamond birds, gathering in swarms round the searcher for water, as with his wooden scoop he sinks a hole into the sand of a creek-bed to obtain the precious supply. The long-legged wasp, with legs drooping down, is seen in dry regions hovering steadily over a special spot. An observer, under these conditions, upon dismounting from his horse found upon close examination and test that the soil at the spot was quite moist, and scratching or digging down there would secure more or less of a supply of water.

MUSSEL SHELL.—The natives consume these in great quantities wherever found. The presence of heaps of shells beside waters indicates the permanence of water supply at the spot. Stuart says (p. 113, "London Springs")—"Round about their fires were large quantities of shell of the fresh-water mussel, the fish from which they (the aborigines) had been eating. I should think this a good proof of the water being permanent." From other sources it is learned that Stuart is mistaken, that these shells are not an indication of permanence of water, living shells being found in waterholes that have been dry for several years in succession.

WATER FROG.—Like the camel when "topped up" by his Arab master for a long journey through dry country, the water frog of Central Australia, i.e., gorges himself quite full of water for a dry season, whilst the water is still about him. He then buries himself deep down in the soft mud at the bottom of his waterhole—the mud dries up and becomes thoroughly "caked" all round him. Thus he solstitiates until the next rainy season come round and releases him.—(Horn's Scientific Exploring Expedition.)

DEW.

The aborigine has learned to avail himself of every possible source of supply of water in his fight for existence in ungenerous country. He knows that in certain regions special food supply may be found if only he can have water whilst he is roaming in that particular hunting ground. Amongst his sources of water supply we find that he avails himself freely of the water stored up for him by the "gentle dew." The sweet, cool Aurora with tender compassion for the dusky wanderer hangs on grass, and reed, and shrub, the day's supply of grateful water in the sparkling drops of clear, fresh dew. These the native patiently gathers into his spacious coolamin. He starts out before sunrise, and gathers with sweep of arm, or tap of

ay's supply. Sometimes a ball shape is swept and the gathered store of moisture the catching utensil is held over a shrub, and a gentle breeze drops the seeds. Ed. John Eyre (1845) gathered thus a quantity of dew hanging on grass in Australia, along the gulches used for water-bearing. As full as a dew-gathering tin, the supply of the dew water for the day can be obtained therefrom in a small vessel. A traveller moving through the morning is soon drenched. Labor Plains, South Australia, to him when twenty miles from him to understand the country he could only have a small belt. The lad stated that others were also coming across the country to come in the next day. The men were at Jacka's camp. Wondering how Brown enquired from the natives how they obtained water in the desert. The reply was—"Get water from the dew." There are very heavy clouds in the morning, and Eyre obtained water from the dew with kangaroo and dingo skins. These are the same regions. The natives have their tongues hanging out of their mouths as they move.

RESERVATION.

hitherto been given all the water perhaps often thriftless. In the morning, he is not really so used. In regions where the water is precarious the aborigine stores it up after his own fashion. The water is in his rock formations. In places, the water is said to be artificial—for the native commences forming a reservoir of a carefully selected place, with a hard and heavy surface (or places it there) and then the wetted rock.

then pounds away again upon the water-softened rock. The procedure is repeated at intervals until a cavity with holding capacity of from two or three up to hundreds of gallons is hollowed out. Such rockholes are often hollowed out and enlarged below, and some of them have a capacity of from 600 to 800 gallons. The water storages they often protect from pollution of animals, or stealth of wild dogs, by filling the mouth or at times the entire cavity with sticks or stones. In the region of the Tomkinson Range (Gulf of Carpentaria) a place was seen where the aborigines had been at considerable trouble to form a good catchment for water. They had formed a rockhole or well in the rock, and had cut leading channels to conduct the rain water into this reservoir. The channels were cut into conglomerate ironstone; evidently very hard and comparatively sharp implements being necessary to secure the result.

NATIVE WELLS.—These are sunk in soil or sand, and usually contain only a meagre supply. They are frequently hidden under the cover of a bush, or in the midst of a thicket, being therefore easily missed by the thirsty seeker. Major Warburton says of some wells that they are sunk with a slight curve in the down course, the water being thus shielded from the direct rays of the burning sun, thereby ensuring a minimum of evaporation; and the contained water is also kept cool. Native wells are often enlarged in capacity at depth, are sometimes serpentine in their course down to water, and vary from 2 ft. or 3 ft. to 10 ft. and 25 ft. in depth. It is most difficult in some cases to reach the water at all, and at times the water contained is so horribly fouled with dead reptiles, dead birds, or rubbish that even a water-famished horse has refused to touch the utterly horrible beverage. Natives stop the mouth of their wells with bushes or sticks to protect from exhaustion, or fouling by dingoes, and other consumers of their scanty store. Several explorers, as Stuart, G. W. Goyder, D. Lindsay, and Chas. Finnecke, describe native wells sunk through limestone and other hard formation to 12 ft. and then driven horizontally 6 ft. to 10 ft. Some have openings like a staircase, some with regular steps for access, with in one case abundant delicious cold water bubbling up at the end of the drive. Such wells are at times long distances from creeks or known waters.

NATIVE DAMS.—Dams of native construction for the purpose of conserving water have been seldom met with. Still there are known instances. Ernest Giles ("Australia Twice Traversed," vol. 11, p. 93) describes a crescent-shaped dam of aboriginal construction formed of clay at Pylebung, near Coudeh, west, South Australia. The opening to the south, to receive the direct flow of water. The dam was formed of the clay dug out of the hole in which the water lay, having been

dug with small native wooden shovels, and piled up to the following very respectable dimensions, viz., 20 yards in length, 5 ft. in thickness at the base, 2 ft. at the top, 5 ft. high—a unique specimen of aboriginal engineering skill, for which skill the defamed native gets no credit. Similar dams of native construction are fairly numerous in this western country—the Boundary Dam of Giles being a notable instance. The lamented explorer Leichardt ("Journal," p. 405) describes a dam so constructed as to arrest a seepage of fresh water oozing beneath the bank of the Robinson River before the outflow could reach the salt water of the river itself. The retaining wall of the dam was formed of clay.

SCRATCHING AND SINKING FOR WATER.—Frequently there is water at comparatively slight depth below the surface of the sand bed of surface-dry rivers and creeks, no sign of such water being noticeable on the surface. Natives, dingoes, emus, explorers, cattle, and horses in Australia's wilds all have learned this lesson, and in this way, by scratching, digging, or pawing, obtain their supply. "Emus and other birds adopt this course" (Stuart, p. 107). Similar supplies are obtained on the south coast, west of Port Lincoln, the dingo travelling very long distances from the interior to obtain water by scratching in the sand. Fresh water is often found in the sand of the seashore along the south coast of Australia. In the Port Lincoln Proper, near where Flinders first secured water, it is spouting up out of sand-covered rocks so far below high-water mark as to be every returning tide to be covered by the sea. The presence of natives is always an indication to strange natives and to whites of the proximity of water in some of the various forms referred to. Signal and camp smokes are always an indication of natives and of water, though the natives may be difficult to find, since they travel quickly and hide if wild or in fear.

WATER-POISONING BY NATIVES.—It is the custom of natives at times to "doctor" or poison some supplies of water, especially those to which emus resort to drink. Their purpose is to stupefy the game thereby, that it may more readily be captured. A variety of nightshade, locally known on the Paroo as "native myrtle," is there used for the purpose. In places in Central Australia the native tobacco, pituri, is similarly used. In the Northern Territory the inner bark of a tree is used. Leichardt speaks of water accidentally rendered poisonous through having, in ignorance of their properties, the seeds of a variety of acacia soaked in them.

WATER-CARRYING.—Natives carry water for domestic use in vessels when they wish to camp at a distance from water supplies for the purpose of hunting or seed and root gathering. The coolamin, a vessel hollowed out of wood, is in most general use. Another vessel seen in use for the purpose was a hollow log.

AUSTRALIAN ABORIGINES' WATER-QUEST.

one 15 in. in length, with one end stopped up with soft mud, and clay. An experienced observer (Mr. C. Harris) noted water being carried in a vessel, which was to be made of a reversed dingo skin, having the hair turned inwards, north-west of the Lakes of South Australia. Skilled natives of the Nullarbor and of opossum seem to have been in very general use for the purposes of water-carrying. In the Northern Territory an unusually large vessel was noted, like a coffin in shape, 7 ft. long, hollowed like a canoe, borne by two men, in which was carried water. Lubras of Charlotte Waters, South Australia, when carrying their coolamin filled with water, use a piece of fur or hair wound into a ring and placed upon the top of the coolamin, the coolamin resting safely in the cup or hollow of the ring of rope, enabling the bearer to walk erect, giving at the same time free use of the hands for other purposes. A coolamin of average size was on test found to have a capacity of over two gallons. A hollow root of old mulgum has been seen used for water-carrying. Vessels formed of mallee roots, with one end stopped with clay, for water-bearing, have been already noted. Cleverly folded and beautifully shaped buckets, formed from a single palmleaf, are in use for the same purposes in the Northern Territory—a marvellous economy, utility, and lightness.

INTRODUCING WATER TREES.

It would form a fair field for enquiry whether some of our own water trees of other countries might not be introduced to Australia for purposes of life rescue for bushmen in seasons of comparative water famine.

It may, too, be possible, by sowing their seed in water courses, to extend the areas of country for growth of our own Australian water trees; so affording a wider supply of these valued aids for Australia's hardy bushmen.

CONCLUSION.

Having taken a cursory glance at the Water Quest of the Aborigines of arid parts of Australia, it will be well to note what way their water craft may be made of benefit to bushmen and explorers, whose calling takes them into those regions of water famine. The bushman should make himself acquainted with—

First—The water trees, water mallees, currajong, needlewood, casuarina or desert oak, and acacia; and where for water he may go confidently to their roots for supply.
Secondly—The presence of diamond bird, finch, pink-necked parrot, and hornet should be looked for, and, if traced, should be followed. Careful watching will disclose where they get their water they must have.

Thirdly—If none of the above avail, let him try scratching in the sandy bed of creeks for water, as taught by the native, the emu, and the dingo.

By resort to some one of these methods the desert will be, many times, robbed of half its terrors, and the unknown "Found Dead" would less frequently figure in those lists of lost bushmen published by our Australian authorities.

The term "Aqua-fera" might, with much advantage, be added to the names of our special water trees. The children of Australia should in our State schools be taught to know and recognise these trees, wherever met with. Let this be done, and the present survey of our "natives' water quest" will have been taken to good purpose; and the white Australian may traverse the dry realms of arid Australia with all the confidence of his dusky brother, the Australian aborigine, who now is hovering on the horizon of an early extinction, leaving us, as one permanent memento of his existence, his legacy of lore in water quest.



Camels in Australia.

By N. E. PHILLIPSON, Esq., J.P.

Read November 1st, 1895.

The camel is one of the earliest domesticated animals; so much so that we have no reliable record of its ever having been in a wild state. It has been employed as a beast of burden as well as for riding purposes since the beginning of the world, at all events since the earliest Mosaic traditions; and mention is made of it several times in the earlier books of the Old Testament. There were certainly immense numbers in the East in those days, as we read that the tribes of Reuben and Manasseh when they destroyed the Hagarites, took away 50,000 camels.

Camels were then used in times of war, in times of peace, and in times of lovemaking. Rebekah, after leaving her people to marry Isaac, as she journeyed, "lifted up her eyes, and when she saw Isaac, she lighted off the camel."

In the East, camels' flesh is eaten, the hide is made into leather, and the hair into rope and various kinds of cloth; the bones, which are solid, are used in lieu of ivory, &c.; and the milk, which is extremely thick and rich, and much like mare's milk, is used in many forms as nourishment. I have so far shown that they have been an all-round useful animal in the East, and will now proceed to show that they are the motive power for the arid portions of Australia. But I must bear in mind that I have only to treat with camels in Australia, or I shall be detaining you too long on what I am afraid at best can only be a very dry subject. However, I will be as brief as possible.

IMPORTATION.—The first importation of camels to Australia was about the year 1846, when Mr. Henry Phillips and his brothers purchased some nine camels at the Canary Islands. Only one of these was landed alive, which afterwards became the property of Mr. Horrocks. This camel, I am told, was an exceptionally good animal. The second lot, namely, 24, was imported by the Melbourne Government in 1860 for the use of the explorations carried out by the ill-fated Burke and Wills. The third lot, of 120, was imported by Sir Thomas Elder, and they were safely landed at Port Augusta on 17th January, 1866. It is from that date that their real start of usefulness in this colony commences, as they were forthwith employed in

transit of goods to various cattle and sheep stations in the interior. These "ships of the desert" at once proved themselves to be of the greatest value, as they were able to convey supplies during one of the most severe droughts, to which the interior of Australia is subject. Two Afghans, Faiz and Tagh Mahomet, who were for six years jemidahs for me, on their return to India brought back a consignment of 259 camels, which arrived here in 1884. Since then there have been several lots imported. These men now have some 500 employed in the transit of supplies to the Western goldfields.

NATIONAL WORK.—The first great national work on which the Beltana camels were employed, was in the construction of the Adelaide to Port Darwin (and London) telegraph line in 1872, when one hundred of them were made use of in carrying wire, insulators, provisions, &c. During the severe drought of 1881, a large caravan of these camels was the means of saving the lives of the starving population of the Albert goldfields, near the boundary line of South Australia and New South Wales, east long. 141° south lat. 29°.

EXPLORING.—Exploration of this vast and arid continent has been rendered a comparatively easy task with these wonderful animals, making a certainty of obtaining the desired goal, when with horses the same attempts must have proved a failure, and an imminent risk of the lives of the explorers and their party, as is evinced by all the records of explorations, including those by Colonel Warburton, Ernest Giles, W. H. Tietkens, and the Elder Scientific Exploring Expedition of Australia, 1891-2. The latter had thirty-three pack and eleven riding camels. These camels, notwithstanding that they were heavily laden, accomplished the extraordinary feat of 537 miles in 34 days without a drink, when the country was suffering with a three years' drought; and the scanty herbage that was obtainable on this arid track was almost destitute of nourishment, excepting in a few instances where there had been a shower of rain, which gave patches of green herbage. It was doubtless this herbage that saved the lives of the camels, and thus enabled the expedition to get through.

CAMELS REQUIRE WATER.—Camels to endure the hardship and privations of doing long stages without water, should be in good hard condition, which can only be secured by ample feed and water while working. Training the camel to go without water is a customary error which means that the animals suffer in condition, and therefore have not the same stamina; as it stands to reason that when you call on an animal to make an extraordinary and sustained effort the better his condition the more likely he is to go through with it. The assumption, too, that camels have an extra stomach or stomachs for the storage of water is incorrect, but it is estimated that a camel has one

and a half gallons of water in the water cells when full, by which means he could on an emergency exist without water longer than would otherwise be possible. Another reason for camels being able to remain without water so long is that they never eat dry fodder if they can obtain green bushes, such as acacia, mulga, oak, &c, which they eat in preference to the best dried grasses. On green grass they require very little water, and on green herbage they can do without water altogether. I have had them employed for two months, working six days per week, and travelling fifteen miles per day, without water. This was on sandhill country where they were conveying posts and wire to fencers, where they had ample green herbage. Camels will do well and thrive on water that is too salt for any other animal to exist on.

FEED.—The food of the camel consists of leaves, thorny bushes, and trees, and saline plants that no other animal can eat; on these they do particularly well. Camels thrive wonderfully that are bred in these colonies, where they are fit to work at three years old. The young are suckled until twelve months old; they are full grown at eight years of age, and make much finer camels here than they would in Arabia, India, or any other part of the East, being free from the many varieties of disease that attack them there. Their doing so well here, is to a great extent to be accounted for by the climate, and not being starved like they are in the East; also, by their having a large variety of saline bushes to depasture on, salt being most necessary to the health of camels, for without an abundant supply of it they would be liable to the various diseases of the East.

WORKING CONDITION.—Camels should be allowed to drink every day if practicable, and to depasture from six to nine hours out of the twenty-four, according to the feed they are turned upon—that is if they are to work all the year round and keep in working condition. In hot weather they would drink about three gallons per day, that is if they are feeding on bushes, but if on dry grass and saltbush they would drink more.

ABSTINENCE.—The idea appears prevalent that camels can live comparatively without food because they can do with so little water, and are "Ruminants" possessing special powers of abstinence; but even this class of animal cannot ruminate on nothing. It is a fact that when they are kept short of feed for a few days they chew the cud very little, and it should be borne in mind more than it is that even a camel must have food inside him before he can chew the cud.

ARTIFICIAL FEED.—As a rule camels in the East are more or less artificially fed, and are not given sufficient to eat, which doubtless accounts for their generally poverty-stricken condition; whereas camels in Australia, as I have just stated, feed on saline bushes, and are generally in excellent working order.

Camels in Australia are broken in at three years old, and are workable up to 25 years, and in some cases older. They should not be laden for the first two months with loads exceeding 2 cwt. Subsequently they can be loaded with 4 cwt. Considering camels work continuously in Australia for 22 years, averaging 90 miles per week when loaded, and 120 miles per week when not loaded, and have frequently to live on pasture upon which other animals would starve, overloading is a great mistake; and, though many camels will carry 8 cwt., the loads should be from 4 to 6 cwt., according to the strength of the animal. I have known of a camel carrying 12 cwt. over steep sandhills for eight miles without showing any desire to lie down, which they generally do when overloaded.

PACK-CAMELS.—Camels when loaded are led by the driver in a string, the leading rope of each animal being attached to the crupper of the one ahead of him. In this way a caravan travels from two and a half to three miles an hour, and eight hours' travelling is ample for them to do per day. If the weather is hot it is best to travel at night, if practicable, as they travel quicker, lose less tissue, and are not so much fatigued. Afghans are generally employed in charge as drivers, but dependable Europeans can do the work equally well. It is a great mistake to employ European and Afghan drivers in the same caravan, as they are sure not to agree, and the work suffers. All drivers of camels must be thoroughly competent to keep their packsaddles in proper repair. Camels are good travellers over most varieties of country, even if boggy, but after rain on slippery clay flats they are unable to get along, as they slide about with their great padded feet. If in steep mountainous country they do not get along so well, which is owing to the deficiency in their hind-quarters, and for this reason they are bad climbers and are unable to jump. Camels are strong swimmers, but are not to be relied upon, as some of them become quite helpless in the water, and will not attempt to swim; they generally have an aversion to water. The camel is not a heavy sleeper, and can do with very little sleep, but requires rest as well as time to chew the cud, and should have at least six hours out of the twenty-four for this purpose. Grooming is doubtless as beneficial to the health of the camel as to the horse. For the quick and certain despatch of loading, it is best that a caravan should consist of four men, each taking ten camels, each camel carrying from 4 to 6 cwt., according to its strength, equal to about 3 tons for each driver. Forty camels in a caravan reduces the chances of detention by camel-straying, which is often a most serious item with large caravans. In the East, they only have four camels to a man.

RIDING CAMELS —A good riding camel, which in the East is generally referred to as a dromedary, will carry a weight of

200 lbs. and do 60 miles per day for a week, 40 miles per day for a month, and 30 miles per day for six months. They travel at an amble or a trot, moving first the two near legs and then the two off legs, and so on. I have known a camel to carry a 15 stone man 60 miles in six hours, and 150 miles in twenty-four hours. There is no reason why a lady should not ride a camel, if she is fond of that kind of exercise and likes to be high up in the world. But though camel riding may not be pleasant, or a camel beautiful, I do not consider it as bad as it is represented to be by an American writer, Thomas Knox, in his book entitled the "Oriental World." However, as his description is amusing, I will give you the benefit of it. He says:—"On the score of beauty the camel has no reason to be proud. His neck and head are ill-shaped, and suggest an overgrown turkey; his feet move awkwardly, and with an appearance of gout, rheumatism, and spring-halt; his skin looks like an old boot that has been exposed to wind and rain for half a year; and his shape generally is as beautiful as that of a gnarly apple. My camel had a grotesquely colored skin; he had hair in spots, and spots without hair, and what he had was of the shade of a very old buffalo robe. He had a sort of wool on his neck, but it was rather bunchy, and looked as if his brother camels had browsed upon it; and his under lip hung down like that of a boy who is about to whimper in expectation of a flogging. When I mounted him he arched his neck around like a snake, and brought his head quite near mine, and at the same time began a noise that was a combination of screaming, bellowing, and groaning. He kept this up about half the time I was on his back, and altogether he made the journey a musical one. The night after my camel ride I dreamed that I had a backbone of glass, and could not move without breaking in two; and when I got up in the morning it seemed as if I was all backbone, and that an iron rod had been passed through it for purposes of rigidity. I went around rather pompously for all that day, and I couldn't have made a bow if I had been in front of the King of the Cannibal Islands, and threatened with instant death for any appearance of incivility. I dropped my cane while walking on shore, and had to hire an Arab to pick it up, and as for putting on my boots, it was as great an effort as to turn a somersault in a peck measure. The result of my camel riding was to teach a great deal of dignity, and to cause me to sit as little as possible in the presence of my elders or of anybody else. What with stiffness and soreness I was not agile in my movements, and it took as long for me to sit down or rise from a seat, and was about as laborious, as to lay the corner-stone of an eight-storey building."

CAMELS IN WAGGONS.—One important feature in the use of camels in Australia is that they are harnessed to waggon like a

CAMELS IN AUSTRALIA.

rees, eight of them taking four tons over ordinary and travelling 15 miles per day. Europeans are ployed as drivers. The use of camels for draught o the extent of one or two is not novel, as one and two are attached to vehicles in the East, and for uses of draught. The weight of the load they are w in Australia is stated to be exceptional, and is fur-ony of the beneficial influence of our climate on the ind, and limb of these useful animals. In point of camel is estimated to be able to draw as much as two rses

IN BUGGIES.—Camels have also been very success- for light draught, two of them being attached to a travelling 40 miles per day on ordinary bush roads.

S OF CAMELS.—Camels bred in Australia are free ie, and thrive particularly well. The imported camels ll after becoming acclimatised, but on their arrival er more or less from mange, which after a month or o disappear. When they become fat it attacks them irulent form, the parasite appearing to be situated in blood. From this disease large numbers have died, that survive this attack continue to do well. One reference to mange is that the parasites or germs of will live for fully two months on the ground, and s the disorder so contagious is that it is the nature of elect a spot to roll on where another camel has pre- down.

The most efficacious cure that has been so far dis- a drench of powdered sulphur, which it is an easy ive a camel; also, an application of equal proportions lm tar, the balance being castor oil, beef or mutton s's sheep dip or other dips, as applied to sheep for s also a good thing.

RINE.—Owing to the disease of mange and the fear diseases might be brought from the East through the i of camels, all camels have now to be placed in for three months after their arrival in this colony.

OF CAMELS IN AUSTRALIA.—It is estimated there sent 1,500 camels in this colony, 500 in New South 4,000 in Western Australia. These have all found o the latter place since the goldfields broke out, ich were imported from India and the balance from . There are only two species of camels, and these de nearly every variety of one-humped camel or (camelus dromedarius), say twenty different breeds, as I know include only five bactrian (or two-humped) melus bactrianus). This breed of camels is very sing much more powerful in structure than others

and having shorter legs and long thick hair. These camels come from Central Asia, where the climate is cold, and are not much used in India.

MARKET VALUE.—The market value of camels bred in Australia may be quoted as follows:—

Pack bulls	...	...	£45
Pack cows	...	..	50
Waggon bulls	..	...	50
Waggon cows	..	...	55
Riding bulls	...	...	55
Riding cows	...	...	60
Buggy pairs	..	...	120

Camels recently imported may be quoted at £15 per head less, which is owing to the predisposition to mange during acclimatisation. Doubtless in the future they will be much cheaper, but even the above prices are comparatively low when it is taken into consideration that they work continuously for 22 years in a country that under the same conditions no other animal could work, and they do not require shoeing like horses or bullocks, which is in itself an immense saving. And, again, the camel consolidates a road by travelling over it with his immense feet, whereas other animals tread it into a dust heap.

HORSES' DISLIKE TO CAMELS.—There is a general impression that horses never get over their fear of animals. They are certainly afraid of camels until they get accustomed to them, and so they are of any strange object, even a donkey or a pig, but it takes longer for horses to get used to camels than any other object, as camels move over all varieties of soil or rubble with their immense cushioned feet without making the slightest noise. Their smell being objectionable and their appearance ungainly, it is no wonder that horses should be some time in making friends with these extraordinary animals, as a horse depends entirely on his sense of sound, smell, and sight to give him confidence. The first sense becomes blank, as the camel makes no noise, and the remaining two senses are outraged. However, if a horse, even a naturally timid one, has never seen a camel, it is easy to make the two animals acquainted in half an hour by starting a camel with a man along a road and letting the horse gradually overtake the camel, in which way and in the short time of half an hour you will find yourself riding alongside the camel; but if, on the other hand, a horse suddenly meets a camel face to face for the first time, it is probable he will never be cured of the intense fear that then seizes him.

CAMELS' BREEDING —To breed camels successfully the same care and attention—in fact I may say science—is required that is necessary to the improvement of cattle, horses, or sheep. One great thing is to avoid breeding from a savage bull, and in my experience I have noticed that the bulls having a decidedly

black head are more vicious than other bulls. There is certainly great room for improvement in the development of the hind-quarters, which are quite out of proportion to the other portions of his body and add considerably to his ungainly appearance. In the East I believe the female produces on the average one calf in three years, but in Australia they generally have a calf every second year.

USE OF CAMELS.—Camels are the only motive power that is of any service in times of drought, to which the interior of this continent is so subject; and, as shown, they are able to keep in excellent working condition on the scantiest feed, and when an occasionally good season occurs they get very fat. In addition to being employed in the transit of wool, they convey immense amounts of supplies into the interior, including stores and provisions required for the Adelaide to Port Darwin telegraph line, and are in general use by the police, telegraph, survey, water conservation, and geological departments.

CAMEL PECULIARITIES.—I must not omit to tell you about the peculiarities of these strange creatures. It has been thought that it is a matter of much training to teach a camel to lie down. This is not so, as it is his natural position. When he is mastered by man or in fighting with another camel and suffers much pain, he at once gives in and lies down. So he soon learns that the button that is placed through the nose and attached to the nose-rope causes him pain if pulled, and after a short time a motion of the hand as though you were going to pull the nose-rope makes him kneel down at once. That he is particularly adapted for this position is proved by the callosities he has to support his body on while resting, of which there are nine, namely, one large one on his brisket, one on each elbow, knee, and hock, and a little one on the outer side of each hock.

EXTRAORDINARY NOISES.—Camels generally make extraordinary noises, cries, and groans while being loaded or mounted. This applies particularly to cows and untrained camels; the older they are the less noise they make. A well-trained old bull would tolerate anything sooner than condescend to notice you.

PALATAL FLAP—This is the name of an extraordinary bag of a flesh color, the function of which is not known; both the male and female camels have it. It is situated in the mouth, and rests on the back portion of the tongue. Only the male camel, however, protrudes it from his mouth accompanied by a peculiar sort of gurgling noise; in some cases he inflates it as big as a football. The power the animal has of protruding this bag is not attained till after he is three years old, and in India and the East not until he is five years old, which appears to prove that the animal is as much developed here at three years as he is in the East at five. The general idea is that this is one of the camel's

waterbags which it keeps in the stomach as a reserve, and that the animal has the power to bring it into its mouth when it requires a drink. This is most certainly not the case, but has doubtless led to many of the fairy stories about the spare bags of water a camel carries in its stomach. It has nothing to do with supplying the camel with water, but may assist to allay the feeling of thirst, which I suppose it must, as Professor Owen states that this bag "shows the pores of innumerable mucous crypts." However, I have never seen a camel protrude it after the third day without water in hot weather, and on dry feed. Perhaps he may then require all the saliva and secretions the bag is capable of producing for his own domestic purposes, and will not therefore waste any of the moisture by exposing the bag to the action of the atmosphere; or perhaps the bag is then too dry to admit of the wonderful expansion it is capable of under ordinary circumstances.

HUMP.—The hump is an extraordinary feature, which tends considerably to his distorted appearance, and appears to be the shape of his backbone, but it is really a lump of fat, and when a camel is in a poverty-stricken state you can see his backbone is straight like other animals. The hump really is a reserve of adipose matter, which enables the animal to undergo greater privations than other animals, as he has a reserve of condition to draw upon.

PERSPIRATION.—Camels do not perspire like other animals, which doubtless assists them to some extent to go so long without water. However, if much fatigued in extra hot weather, they perspire in one small patch about the size of a five-shilling piece at the back of the neck, which is like ink. A drop of this, the Afghans allege, is deadly poison.

SIMOOMS.—When a camel is overtaken in the East by a simoom he drops on his knees, stretches out his neck, and closes his nostrils tight, until the simoom is over. There is no occasion for this performance in Australia.

THE UPPER LIP.—The camel's upper lip is of considerable length, and is divided like a hare's. I think I must tell you a short story or tradition as to the cause of this, which was told me by an Afghan (who like all Afghans, are Mohammedans) as a proof of one of the miracles worked by their Prophet Mohammed. Mohammed on one occasion being hardly pressed by a large army of his enemies, was compelled to go up a gorge into a sort of pound in the ranges. As this was at night, his pursuers decided to camp at the entrance of the gorge till daylight, making certain that they had Mohammed and his followers captives. But Mohammed and his party returned in the small hours of the morning, the former causing the camels to pass noiselessly through the enemies' camp without disturbing anyone, and on getting clear of this critical position he dis-

mounted and kissed his camel on the lips, when the upper lip of all the camels parted, and in commemoration of this miracle camels have moved noiselessly and have had hare lips ever since.

UNPOPULARITY.—Though camels from the earliest history of the world have been most valuable servants, and saved the lives of all classes and conditions of people by their good services, and though there is no animal more domesticated, still no one can feel affection for a camel like he can for a horse or a dog. A camel certainly has most beautiful, soft, large, sympathetic eyes, but he himself is devoid of sympathy, and is extremely ugly, and declines at all times to show any regard or affection, or accept any familiarity from his rider. He will eat bread out of his hand, but never appears thankful for any attention, and, in fact, always resents it with an unpleasant harsh grunt, except in cases of some bulls, who will never give even the satisfaction of a grunt or of noticing his rider under any circumstances, treating him always with the same distant manner and contempt, doubtless feeling how necessary he is to the rider, and on the other hand knowing how thoroughly independent he is if left alone. I have known of camel calves being reared by hand that would follow the person who fed them, and would at times become playful, but yet never showed any appreciation for kind services rendered, in fact regarded any slight advance on the part of the person tending them in the light of a liberty. So, as the camel will not reciprocate any attention, it is an impossibility to attempt any further to make friends with him, and his best friends have to give him up, as I am sure you will all be pleased I am now compelled to do. Should any enquiring minds be desirous of being more enlightened, I have much pleasure in referring them to a very clever and exhaustive work by Major Arthur Glynn Leonard in 1893, entitled "The Camel: Its Uses and Management," which is the best book I have ever seen, and from which I obtained much valuable information.

The lecturer concluded by showing a few views on the Beltana Run, where large numbers of camels have been bred, and from which place so many exploring parties have obtained their camels and outfits, and taken their final departure for the interior. The lantern slides included a view of Beltana railway station; Aroona waterhole, showing a mob of camels watering, and the wonderful cliff of rocks, which is 300 feet in height; view of Puttapa Gap on the railway, with a traveller on a camel passing under the bridge; Temple Bar, a place 12 miles to the east of Beltana head station; view showing a team of camels with the blacksmith's cottage and Beltana Creek in the background; view of a hill three miles from Beltana station.

The Tides of South Australia.

BY R. W. CHAPMAN, M.A., AND CAPTAIN INGLIS.

Read December 13th, 1895.

Amongst some old documents lying at the office of the Marine Board was recently found a letter from Downing-street, 14th June, 1837, containing a request from Lord Glenelg to Captain Hindmarsh, R.N., then Governor of the province, that he should take steps to obtain an accurate record of the tides at Port Adelaide. The letter sets forth that it is extremely important to obtain such records from the Southern Hemisphere in order to advance the scientific theory of the Tides; and contains full instructions for the making of a simple tide gauge and as to the method of taking and recording the observations. The request was evidently complied with, and attached to the letter is a copy of the results of observations extending over the months of June and July, 1839, which were forwarded to England in response. The records thus taken represent the results of the first enquiry into the behaviour of the peculiar tides whose strange vagaries puzzle the fishermen and sailors along our coasts. The systematic recording of the tides at Port Adelaide thus begun over fifty years ago was continued intermittently until the establishment of the present self-registering tide gauge, although unfortunately great care was not taken of the records, and no continued series of them can now be found.

The Admiralty surveyors have done a lot of very useful work by establishing the time of high water at full moon and change of moon, at most of the ports and principal headlands along our coast. These observations are unfortunately not of much use for predicting the time of high water on any particular day, for which purpose they were partly intended; because, as we shall see presently, our tides are not sufficiently regular to make it possible to determine the time of high water simply by reference to some standard port where the tides are normal. The difference between the times of high water here and at Brest, which is the standard port usually taken, is very far from being constant, nor does it follow any simple law.

The results of these observations are shown on the accompanying map (Plate I.). The time of high water at Cape Northumberland is marked 0 hours, and the figures at the other ports mark the interval in hours and minutes which elapses

after it is high water at the Cape until it is high water at the port under consideration. As the tidal wave approaches the southern coast from the south-east, the shallow water near the shore retards its progress, and the portion of the wave out in deep water travels on much more rapidly. The result is that the front of the wave is pulled round, as it were, so that it is almost parallel to the shore line. A similar phenomenon, on a smaller scale, is always to be observed on any sea beach, where a long line of wave advancing at an angle towards the coast has its shore end retarded, so that the whole line swings round, and ultimately breaks practically parallel to the beach. So that no matter at what angle the wind is blowing on to the coast, the long lines of waves near the beach always follow the shore line. Thus, although the main tidal wave approaches our coast from the south-east, the time marked at any particular spot on the map is not to be looked upon as the time taken for the tide to come from Cape Northumberland; for, at the same time as it is high water at the cape, it may be high water some few miles out at sea from the port in question. Thus we get some apparently peculiar results. For instance, it is high water at Lacedpede Bay some half-hour earlier than at Guichen Bay. Again, there is half-an-hour interval between the high waters at Cape Northumberland and Rivoli Bay, and only eight minutes between Rivoli Bay and Guichen Bay. Such results as these are probably explained from the fact that where the water is deepest the tidal wave will travel most rapidly, so that if it is deep water in front of port A whilst the water is comparatively shallow for miles in front of port B, it may happen that the wave reaches A before B although A may be further along the coast from the south-east.

The tide in travelling up the gulfs exhibits the ordinary peculiarities in such cases. The wave is propagated with a greater speed along the deep water of the middle of the gulf than along the shallow at the sides, so that it is everywhere high water in the middle of the gulf some considerable time (about one and a quarter hours opposite the Semaphore) before it is high water at the opposite points on the shore at each side. By the time the wave has reached the head of St. Vincent Gulf, the co-tidal line is practically parallel with the coast line all round, so that the wave reaches Port Wakefield at the head of the gulf at the same time as it reaches the Semaphore and Black Point at the sides, and the time of high water is the same at the three places. Further, as the wave travels up the gradually narrowing gulf into shallower water its speed diminishes, but its height increases, so that the mean spring range of the water is 6 ft. at Rapid Head, 8 ft. 3 in. at Port Adelaide, whilst at the head of the gulf at Port Wakefield the range is 11 ft. Again, going up Spencer Gulf the range is 5 ft. at Thistle Island, but is in-

creased to 12 ft. at Port Augusta. The tide enters St. Vincent Gulf by the two channels round Kangaroo Island, but unfortunately observations have not been taken at a sufficient number of points round the island to enable us to trace out the co-tidal lines. It is peculiar that high water reaches Ante-Chamber Bay one and three quarter hours before it reaches Cape Willoughby, but the reason of this is not clear. Apparently when the tide enters the gulf there is a strong current setting across from Sturt Bay on the Peninsula to Hog Bay on the Island, as has been evidenced on several occasions by the way in which floating objects have been carried. Things thrown overboard near Short Bay have been on several occasions afterwards picked up at Hog Bay.

A peculiar tidal phenomenon takes place at Port Lincoln, which was noticed by Flinders. He observed there that "the tide did not exceed $3\frac{1}{2}$ ft., and that as in Princess Royal Harbor, there was only one high water in 24 hours, which took place at night, about 11 hours after the moon's passage over the meridian. Yet at Thorny Passage, which is but a few leagues distant, there were two sets daily. This difference in so short a space appears extraordinary; but it may perhaps be accounted for by the direction of the entrance to the port, which is open to the north-east, from whence the ebb comes" (Captain Flinders' Terr. Aus., vol. i., p. 150). The explanation here tendered is by no means obvious as it stands, but taken in conjunction with another well-marked peculiarity of our tides it may afford a solution of the difficulty. All round the South Australian coast there is a well-marked "diurnal inequality," as it is termed; that is to say, the forenoon and afternoon tides are by no means of equal height, but one is much greater than the other. Now, at Port Lincoln the observable tide is probably only the higher one of the two daily tides, for owing to the direction of the outlet of the harbor the water cannot get out freely, as the ebbing tide from the Gulf retards its outward flow. The result is that the level of the water at the Port falls very slowly, so slowly that the second lower tide which follows in the course of the day does not appreciably raise the level of the water, and so is not apparent as a tide. At Boston Bay there are two tides, with a large diurnal inequality, so marked as to make it sometimes appear that there is only one tide in the day.

In order to obtain a complete knowledge of the tides at any port, no system of eye observation can compare with the records of a continuous self-registering tide gauge. We are indebted very largely for the erection of three such gauges along our coast to the influence of Mr. Stephens, the present President of the Marine Board, and also for getting the records kept in a systematic manner and preserved. These three gauges have

been set up at Port Adelaide, Port Pirie, and Port Augusta, and the first records from these were obtained in 1981. The form of tide gauge in use at Port Adelaide is that due to Sir W. Thomson, and a photograph of the instrument is shown (Plate II.). This registers the height of the water above a selected datum line at every instant; the record is taken on a roll of paper sufficiently long to register the tides for about six months. The scale of the gauge is 3 ft. to the inch, that is to say, a difference in the height of the water of 3 ft. is represented by 1 in. on the record. The curves can be easily read to the twentieth of an inch, corresponding to 1.8 in. alteration in the level of the water. The datum level used is that selected by Lieut. Goalen in his survey in 1875, and differs by about 3 in. from the Surveyor-General's datum. The tide gauges at Ports Pirie and Augusta are of a rather simpler construction; they do not register on a continuous roll, but a fresh sheet of paper has to be put on the drum each day.

An examination of the records from each of these gauges shows that the tides at the three places are very similar, and are marked by the same general features. In the first place we find an absence of that intimate connection between the time of high water and the time of the moon's passage across the meridian which is so marked in the ports of the North Atlantic, and which first suggested that the tides were largely due to the attraction of the moon. If we examine this connection at some port where the tides are normal, by plotting out a curve to show the nature of the changes in the interval between the moon's meridian passage and high water on successive days, we find that these pass through a regular cycle. In the diagram (Plate III.) for example, we have done this for the port of Brest. The distance of the curve below the zero line measures the interval between the moon's meridian passage and the time of high water on successive days. The result shows that this interval is not constant, but traces out a regular wavy curve. The curve is all on one side of the zero line, showing that high water always occurs after the moon's upper transit. When, however, we attempt to do the same thing with our Port Adelaide tides we find that instead of getting a periodic curve the interval shows a continuous progression, as is exhibited on the same diagram by the upper curve. In fact we have not the same number of tides in a month as there are transits of the moon. We get a similar result for Port Adelaide if we attempt to draw a curve showing the change in the interval between the sun's meridian passage and high water. This at once shows how hopeless it is to attempt to apply here the ordinary sailor's methods in use for predicting the times of high and low water. This consists in finding the interval of time between the high water of the

spring tide at the port in question and some standard port—Brest being usually selected for this purpose. Now, at Brest, the tides are so regular that, as the result of observations extending over a number of years, the times of high and low water can be predicted almost with certainty for any particular day. These times are given in the Admiralty tide tables for each day of the year. To find the time of high water at any other port it is usual to add or subtract the constant difference to the time of high water at Brest, allowing, of course, for the difference of longitude. The method thus assumes that the interval of time between the high waters at Brest and the port dealt with is a constant interval. When applied to such a port as Adelaide, however, it is only found to give even approximate results at about full and change, whilst it is altogether useless at other periods of the month. This is brought out very well by the next diagram (Plate IV.), where the tide curves, for Brest and Port Adelaide are placed one over the other. It will be at once seen that the interval between the times of high water changes very greatly through the month, and is not even approximately constant, in fact there are not the same number of tides.

We next notice a very marked “diurnal inequality,” of which we have already spoken, in connection with the Port Lincoln tides. The forenoon tide, as can be seen from Plates IV. and V., is different in height to the afternoon tide, the maximum difference being about 3 ft. This inequality changes sign some time before the first equinox and some time after the second. That is to say, from about the middle of October until about the middle of February the morning tide is the higher, but from then on to the middle of October again the afternoon tide is higher than the morning tide. On the ordinary theory of the tides, however, this is what we should expect.

Plate V. exhibits the tidal curves at Port Adelaide for 15 consecutive days in July, 1889. On comparing this with a similar diagram (Plate VI.) for 14 days at Bombay, taken from Prof. G. H. Darwin’s article on the tides in the *Ency. Brit.*, the comparative irregularity of the Adelaide tides is very apparent. The Bombay curves show a regular sequence from day to day, both as regards time and height, so that the high waters and low waters lie on parallel curves, between which the tidal curves are interlaced. The Adelaide curves, however, show no such continuous progression, and form no such symmetrical design. It will be noticed from the diagram that it is almost always fairly low water at noon at Adelaide.

The most notable peculiarity about our tides, however, is what is locally termed “the dodging tide,” which takes place regularly at the neaps. At this period the curves show commonly no marked tide at all, in some cases the level of the water

THE TIDES OF SOUTH AUSTRALIA

aining almost constant for a whole day; in other cases one all tide occurs during the day. On each side of this the tide markedly irregular both as regards time and height, and the parent impossibility of saying when the tide will be at this particular period has presumably gained for it its title of "The dger." The further we get away from the neaps the more ular is the tide, until at spring tide it is fairly normal. This shown on the diagrams. Although there are no other tide uges around the southern coast of Australia from which we ild settle the matter conclusively, it appears probable that a peculiarity extends almost right round the southern coast Australia, and certainly as far west as Fremantle. At Warrnbool Mr T. W. Judd in answer to enquiries from us kindly a number of observations taken there. He states that the up tides are very irregular and, especially in the summer ie, it is common to have no perceptible tide at neap, and often a day or two on each side of neap. The Port Augusta and rt Pirie gauges show exactly the same thing as the Port elside gauge, and similar phenomena undoubtedly take place ht round the South Australian coast.

As is the case with the tides of the North Atlantic, the ing tides take place at an interval *after* the full and change. The modern dynamical theory of the tides teaches us that we y regard the tidal wave at any particular place as the result the superposition of a number of simple waves, each one of ich would be perfectly regular, both as regards its period and height. The revolution of the earth on its axis with respect the moon on the equator for example, would set up perfectly ular tides, the two principal ones having a period of one ar day and one half-lunar day. Similarly the sun alone on e equator would set up regular tides, whose periods are one ar and one half-solar day. If the sun and moon were always the equator the tidal effect observed then would be mainly e result of the superposition of these four tides. But both e sun and moon, owing to their declination, commonly each e rise to a diurnal inequality, as we have already seen. e effects can be separated out and regarded as additional y tides added on to the previous ones. These are known as e "declinational" tides. Further, the revolution of the on round the earth, and of the earth round the sun, would up tides whose periods are one fortnight, one month, one lf-year, and one year. In this way theory shows that the al tide may be regarded as the combined effect of some 28 nponent tides, each one of which would be a perfectly regular armonic" wave, whose period, or time, from one high water e next, is known from astronomical considerations. If e earth were covered with ocean of a uniform depth, or e had some exceedingly simple and regular disposition

of land and water, it might be possible to calculate the magnitude of each separate tidal constituent, and the time at which the crest of each wave would arrive at any particular spot on the earth's surface. But the actual conditions are so exceedingly complex, the depth of the ocean varies so irregularly, and the coast lines are so broken, that this calculation is quite out of the pale of mathematical possibilities. Since, however, astronomy can inform us accurately of the motions of the earth and moon, we are in the position of knowing the time period of each particular wave; it is then possible, if we have a continuous series of tide observations at any port, such as are given by the self-registering tide gauge, to compute from them the actual magnitude of each component wave. This analysis of the tidal curve into its separate constituent waves is spoken of as the Harmonic Analysis of the Tides. The analysis of the tide and determination of the different constants involved at various ports on the earth's surface is of considerable scientific importance in furthering our knowledge of general tidal phenomena in the hope of advancing tidal theory; but it also gives us the only strictly scientific method of predicting the tides at any port, and the only method capable of giving any predictions worth having at ports such as our own. It is clearly possible, if we know the magnitude and length of each separate wave, and their relative phases at any particular time, to determine their combined effect at any subsequent time, no matter how far distant.

The influence of the wind on the height of the tide is so marked that it might be considered to introduce an element of uncertainty into any calculations of this kind. But in basing the results, as is actually done, on the records for a whole year, its effect is practically eliminated. A continued strong wind in one direction may affect the predicted times and heights to a certain extent, but its influence is commonly much exaggerated. We have made two separate analyses of the curves for the Port Adelaide tide gauge, one for twelve months' curves, beginning March 1st, 1889, and the other for twelve months, beginning January 1st, 1893. The results are given in the accompanying table:—

THE TIDES OF SOUTH AUSTRALIA.

5 OF HARMONIC ANALYSIS OF PORT ADELAIDE TIDES.

Analysis of Tide Curve for Twelve Months beginning midnight Feb. 28, 1889.		Analysis of Tide Curve for Twelve Months beginning noon Jan. 1st, 1893.	
Semi-range in feet.	K	Semi-range in feet.	K
·08	122°	·06	108°
1·66	180°	1·70	182°
·02	178°	·04	194°
—	—	·01	180°
·21	51°	·02	62°
·84	51°	·82	54°
—	—	·11	165°
—	—	·04	179°
·47	177°	·46	179°
·01	24°	·03	8°
1·71	121°	1·69	119°
—	—	·06	99°
·12	176°	·02	171°
—	—	·01	259°
·08	294°	·10	140°
—	—	·12	140°
—	—	·06	76°
·53	34°	·51	30°
—	—	·05	65°
—	—	·07	31°
—	—	·28	226°
—	—	·10	67°
·25	132°	·02	99°
·17	123°	·36	121°
·13	256°	·28	54°
·08	194°	·11	254°
·08	258°	·04	168°
		·03	143°

ults are stated in terms of the notation used by the committee of the British Association for the Advancement of Science.

At ports the two most important tides are the semi-tides, due to the sun and moon respectively, and the al effects are of comparatively small importance. The tide due to the moon is generally considerably greater than that due to the sun, the lunar tide having usually an amplitude about 2½ times that of the solar tide. A most remarkable fact arising out of the harmonic analysis, however, in which the south coast of Australia is unique, is that the solar and lunar tides are almost equal, so that the sun has as much influence on our tides as the moon. Each of these tides has a total range of

about 3 ft. The only other analysis of tides along the coast of Australia, we believe, are some effected by Sir W. Thomson some years ago on the results of observations taken at Fremantle, W.A. He found the same thing to be true at that port, and the probability is that this is the case all along the intervening coast. The declinational tides are seen to be comparatively large, the principal diurnal having a total range of 1·67 ft. These results give us the explanation of our dodging tides. At the neaps the solar and lunar tides are acting in opposition—that is to say, one gives high water at the same time as the other produces low water, and, being equal, instead of merely giving us a small tide at that time, they completely destroy one another, so as to give us no tide at all. The relatively large declinational tides, giving us one tide a day, consequently come in and predominate over them. So that at this time the tides observed are not the ordinary semi-diurnal tides at all, and hence the great apparent irregularity.

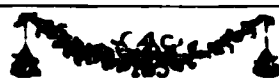
We append tables showing the fluctuations in the mean level of the sea at Port Adelaide for ten years ending 1891:—

MEAN LEVEL OF THE SEA AT PORT ADELAIDE FOR TEN YEARS
ENDED DECEMBER, 1891.

	1882.	1883.	1884.	1885.	1886.	1887.
January	4·209	3·781	4 225	3·932	4·801	4·917
February	3·705	4·054	3·668	3·872	4·302	3·781
March	3·984	4·095	3·426	4·000	3·832	4·358
April	4·345	4·358	4·103	3·756	4·165	4·114
May	4·774	4·629	4·208	4 102	4·387	4·330
June	4·313	4·717	4·948	4·480	4·176	4·671
July	4·635	4·282	3·928	4·076	4·017	4·851
August	4·073	4·452	4·283	4·562	4·542	3·793
September	4·413	3·694	3·957	3·826	4·284	4·480
October	3·956	3·940	3·948	3·698	4·292	4·163
November	3·954	4·051	3·470	3·602	4·233	4 071
December	3·953	4·479	4·459	4·175	4·013	3·861
Sum.	50·314	50·532	48·623	48 081	51·044	51·390
Mean	4·193	4·211	4·052	4·007	4·254	4·282
Mean height of barometer at Adelaide	30·047	30·060	30·075	30·121	30·075	30·066

Mean Level of the Sea at Port Adelaide for Ten Years ending December, 1891 (continued)—

			1888.	1889.	1890.	1891.	Sum.	Mean.
January	...	...	4.129	4.202	3.717	4.417	42.330	4.2330
February	...	...	4.083	3.757	3.663	3.875	38.760	3.8760
March	...	...	3.967	4.082	3.856	4.271	39.871	3.9871
April	...	...	3.916	4.043	4.052	4.230	41.082	4.1082
May	...	...	4.150	4.267	4.117	4.146	43.110	4.3110
June	...	...	4.562	5.110	4.928	4.480	46.385	4.6385
July	...	...	4.783	4.194	4.225	4.771	43.762	4.3762
August	...	...	4.125	4.557	4.192	4.333	42.912	4.2912
September	...	...	3.910	4.380	4.412	4.041	41.397	4.1397
October	...	...	3.658	4.389	4.575	3.875	40.494	4.0494
November	...	...	3.838	4.114	4.307	3.917	39.557	3.9557
December	..	...	3.750	4.392	4.110	4.646	41.838	4.1838
Sum.	...	...	48.871	51.487	50.154	51.002	501.498	50.1498
Mean	...	...	4.073	4.291	4.179	4.250		4.179
Mean height of barometer at Adelaide	...	..	30.112	30.058	30.036	30.111	—	—



PROCEEDINGS
OF THE
Royal Geographical Society of Australasia.
(SOUTH AUSTRALIAN BRANCH.)

TENTH SESSION, 1896-7.

COUNCIL MEETINGS.

July 13th, 1896.

Present—Seven.

Resolved that his Excellency the Governor be asked to preside on the occasion of Mr. Noel Buxton's paper on Japan.

October 1st, 1896.

Present—Five.

Secretary reported that the following papers had been read since the last meeting:—On July 17th, by Noel Buxton, Esq., on "Travels in Japan;" and on September 14th, by Rev. Isaac Rooney, on "The Origin and Migration of the Polynesian Races."

Mr. Gill, hon. treasurer, suggested that Mr. Buchanan's "Journey Across the Interior" be handed to the press for publication. Approved.

October 12th, 1896.

Present—Seven.

Resolved, that a letter of condolence be sent from this Council to the Victorian Society on the death of Baron Von Mueller.

November 25th, 1896.

Present—Seven.

Resolved, that a telegram be forwarded to Sir John Forrest, Premier, W.A., expressing the thanks of this Council for the interest and sympathy he has shown, and for the kindly help he has rendered in connection with the two missing members of the Calvert Expedition, and that this resolution be entered on the minutes as a record of this Council's appreciation. Also, that a letter of sympathy be sent to Mr. Wells, as leader of the expedition.

January 18th, 1897.

Present—Eight.

Mr. Borchgrevink was introduced to the Council, and explained his plans with regard to his proposed Antarctic expedition.

May 17th, 1897.

Present—Seven.

Resolved to purchase an old volume offered to the Council for one guinea, entitled "The Compleat Geographer," date 1709; also, that the thanks of the Society be given to D. Murray, Esq., for his donation of a volume of the "Proceedings of the Geographical International Congress of 1895."

Received letter from Mr. Denger respecting Frenchman's Rock. Mr. Bonython stated that he had waited on the Premier on this subject some time since, who had promised that the rock should be fenced, and that he would again interview the Premier on the subject.

ATTENDANCE ROLL

SESSION 1896-7

COUNCIL MEETINGS HELD, 6.

S. Newland, J. P.	.	.	.	.	.	.	.	5
A. T. Magarey	.	.	.	.	.	.	.	5
R. K. Thomas, J. P.	.	.	.	.	.	.	.	1
Dr. Perks	.	.	.	.	.	.	.	1
W. P. Auld	.	.	.	.	.	.	.	5
C. H. Goode, J. P.	.	.	.	.	.	.	.	3
J. L. Bonython, J. P.	.	.	.	.	.	.	.	5
A. W. Dobbie, J. P.	.	.	.	.	.	.	.	4
Thos. Gill	.	.	.	.	.	.	.	4
C. H. Harris	.	.	.	.	.	.	.	3
E. H. Newman	.	.	.	.	.	.	.	6

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

ANNUAL MEETING.

The annual meeting of the South Australian branch of the Royal Geographical Society was held at Union Hall, Pirie-street, on Thursday afternoon, June 17, 1897. There was a fair attendance of members, and the President (Simpson Newland, Esq., J.P.) occupied the chair.

The annual report of the Council stated:—"Since the last report, dated June 19th, 1896, your Council have held six meetings, and during that period five new members have been elected members of the Society. The papers read during the past session have, owing to various circumstances, been only two in number, comprising a lecture by Mr. Noel Buxton, 'In Japan,' and one by the Rev. Isaac Rooney on 'The Origin and Migration of the Polynesian Races.' A series of interesting papers is promised for this coming session. By the lamented death of the late Sir Thomas Elder, this Society has lost one of its oldest and most illustrious members. He had filled the office of vice-president, he was one of our founders, and had ever manifested the warmest interest in the welfare and progress of the Society. To his munificent help the colony at large is indebted for the great work of exploration that has been carried out at various times at his partial or entire cost, under the leadership of Ernest Giles, Major Warburton, Charles Winnecke, J. Lewis, J. Ross, D. Lindsay, and others; thus opening up vast tracts of territory hitherto unknown and untraversed. The one prominent object with Sir Thomas Elder was ever to promote the interests of various societies in every department of science and of art by princely contributions—societies still borne in remembrance at his death in the legacies

he has so generously bequeathed on their behalf, including £2,000 which he had set apart for the purposes of this Society. Your Society has also, in the death of the late Baron von Mueller, to deplore the loss of one of the most eminent scientists of the present age. Distinguished alike in medicine, chemistry, and especially in botanical science, he was an important element in geographical exploration, by which new tracts of country were opened up to pastoral settlement and to mineral pursuits. Baron von Mueller was an old resident of Adelaide, and subsequently accompanied Gregory in his exploration on the Victoria River. The death of this distinguished man has left a vacant space in the scientific world that cannot easily be filled up. The Calvert Exploring Expedition, fitted out by Mr. Albert F. Calvert (of London), under the leadership of Mr. L. A. Wells, left Lake Way on July 16, 1896, and at once proceeded to examine the unexplored regions towards Joanna Spring. On October 11th the party was divided in the interests of exploration at a water since named Separation Well. The main party under Mr. L. A. Wells, leader, proceeded northward toward Joanna Spring with the heavy portion of the stores and the collections. This party, after enduring most severe hardships through excessive heat, scant food for camels, want of water, and difficulties of rolling sand ridges, reached the latitude of Joanna Spring on October 29th and the Fitzroy River on November 6th, the whole party having narrowly escaped disaster through want of water, and almost all of the stores, equipment, and collections having been abandoned in the desert. Messrs. C. F. Wells, second in command, and G. L. Jones, naturalist, as arranged, left on a bearing of 290°, intending to go 80 miles to 100 miles west, and thence rejoin the main party at Joanna Spring, but unfortunately were unsuccessful, and perished in the attempt. The names of Charles F. Wells and G. L. Jones must be added to the list of those explorers who have heroically done their best in the path of duty and have died in harness. They lost their lives in the terrible region south of Joanna Spring, victims of excessive heat, want of feed for camels, and want of water. They died on November 12th, 1896, and the bodies were found by Mr. L. A. Wells, leader of the Calvert Expedition, on May 29th, 1897. The remains will be removed to Adelaide. In August last an expedition was dispatched by the South Australian Government, under the charge of Mr. S. G. Hübbe, to search for a suitable stock route from the Northern Territory to Coolgardie, West Australia. Owing to the arid nature of the country traversed, the main object of the expedition was not attained. Nevertheless, a large amount of valuable information on the physical geography of the route travelled has been collected, and we trust the Government will cause Mr. Hübbe's

report to be published for general information. In January last this Council was interviewed by Mr. C. E. Borchgrevink, who was associated with Captain Christensen in his voyage to the Antarctic Seas in 1895, and who expressed his strong desire to your Council for the formation and speedy dispatch of an expedition for the direct exploration of that region in the course of the present year. The vast importance and absorbing interest of such a project fully justified the Council in their promise to render him any assistance in their power towards the furtherance of his objects. Mr. Borchgrevink left Adelaide with the intention of seeking the co-operation of the other branches of this Society. Whether he is successful or not, it cannot be doubted that after the brilliant success of Dr. Nansen's expedition to the Arctic region, an early effort will be made to solve the mysteries surrounding the Antarctic hemisphere. Your Council have also to report that during the year very valuable information has been published in connection with the Horn Scientific Expedition relating to ethnology, fauna, flora, and physical geography of Central Australia, published by Mr. Horn himself, and by the Government of South Australia."

The financial statement presented by the Hon. Treasurer (Mr. T. Gill) showed—subscriptions, &c., £65 11s. 4d.; payments for the year, £59 10s. 7d.; leaving a cash balance of £6 10s. 11d.

The CHAIRMAN said the past had been a most eventful year, not only in South Australia, but, so far as exploration was concerned, in other parts of the world, particularly in Arctic regions. The late Sir Thomas Elder was one of the most illustrious members of the Society, and his liberality had been marked from its inception. He gave a handsome donation of valuable books, and had fitted out many expeditions, but of his numerous bequests to the Society, for the last they should feel particularly grateful, inasmuch as it relieved them of the debt which had weighed upon them for so many years. They would shortly receive the amount, and he hoped they would be able to invest it for the lasting benefit of the Society. The Calvert Expedition, generously fitted out by Mr. A. F. Calvert, left Adelaide under the highest auspices—well equipped, well led, and well manned. The season, too, appeared to be favorable, and hopes and anticipations of a successful issue and triumphant return were confidently expressed. Yet all had been baffled; the courage, the endurance, the strength, and experience of some of the best men and bushmen of Australia had been crushed in a vain strife against that awful treadmill of sand-hills—heat and drought. In this bitter failure there was this crumb of comfort—the much-maligned savage did not appear to have molested the party from beginning to end. There was some consolation in knowing that nothing was left undone

either by Mr. L. A. Wells or Mr. A. T. Magarey to rescue the lost. They indeed had passed beyond all succor almost before their loss was known, and quite before any party could start for their relief. Yet everything was tried. No expense was spared. Mr. Calvert promised funds for Mr. Magarey's disposal, and they all knew and recognised that gentleman's unremitting anxiety and care to do all that the most devoted attention could do. As for the brave men who repeatedly faced the terrors of that burning desert in their efforts to save life, their efforts and heroism deserve the fullest recognition. (Hear, hear.) They could not speak in too high terms of what Mr. L. A. Wells and Mr. Rudall had done—they did as much as man possibly could do. (Hear, hear.) The chapter of Australian exploration closed as it began with deeds of splendid endurance and courage, with deeds of awful suffering, and with the loss of heroic lives. He said "closed," for it could not be supposed that any other expedition would ever be fitted out, for there was nothing more to discover. The blanks still untraversed might wisely be left to the squatter, the prospector, and other hardy adventurers to fill up when good seasons and opportunity served. (Hear, hear.) But what should they say to show their sympathy with those near and dear to the dead? They at least had this consolation, that the names of Charles Wells and George Jones would go down to posterity in the long list of Australia's noble sons who had given their lives in the cause of exploration. (Hear, hear.) The magnificent success and triumphant return of the Nansen expedition was in marked contrast to our misfortunes. No expedition to the Arctic regions had ever proved so brilliant, and reading the thrilling narrative one was overwhelmed with astonishment how every difficulty was foreseen and met. Since reading Nansen's book he had asked himself if the cold and darkness of the long Arctic winter equalled in horror the burning heat and thirst of our Australian summer and desert. It would always be a question. He moved the adoption of the report and financial statement.

Mr. F. W. GILES seconded.

The motion was carried.

The Hon. J. L. PARSONS moved—"That this Society desires to convey its sympathy with the relatives of the late Messrs. Charles F. Wells and George L. Jones, members of the Calvert Exploring Expedition, in the bereavement which has come to them. To Mrs. Charles Wells and her sons the Society would express its deep sense of the heavy loss sustained through the death of husband and father. Mr. Charles Wells was a thorough bushman, a genial, sympathetic, and true man. He endeavored heroically to perform the work he undertook, and was beaten only by difficulties which were beyond his control.

It is touching but grateful to know that he was able with loving hands to render the last services to his younger companion before he himself passed away. To Mr. and Mrs. J. W. Jones the Society desires to convey its full sense of deep sympathy in their loss of a dutiful and devoted son. It will ever be a consolation to them to know that thousands of hearts all over Australia are moved to sympathy with them in their hour of trouble. Their son George gladly and cheerfully sought to carry out the task he undertook. Failure came through the sudden springing up of difficulties unforeseen, and the heroic struggle towards Joanna Spring shows that there are still brave hearts to do and dare for Australia." He was sure they all felt that it was a fitting but melancholy duty that they as a branch of the Society in South Australia should place on record these resolutions, and that the Secretary should convey to the relatives of the two heroic men who had gone, their expression of sympathy—their deep sympathy—in the desolation and disaster which had come upon them. The late Mr. Charles Wells he knew intimately. During the time he was Government Resident of the Northern Territory Mr. Wells was in the Survey Office, and he never had anyone upon whom greater dependence could be placed than upon him, for he was energetic and faithful in the discharge of his duty. (Hear, hear.) On the day that Mr. Wells received the appointment to the Calvert party—it was melancholy to recall it—he met him in the street, and his success in securing the responsible position appeared in his face, his tone, his entire manner. No one more deeply regretted than he that instead of welcoming him home—a pleasure to which he had looked forward—it was his duty to ask the Society to send this message of sympathy to his home. Young Mr. Jones he only knew slightly, but his father and mother he had known for years, and he knew that for many months they had had the sympathy of the people of the colony, and he might say of the entire English-speaking part of the world. (Hear, hear.) They could only express their regret that so much endurance, courage, and resolution should have been in vain. The Laureate Tennyson wrote for the cenotaph on Franklin, the great North Pole explorer, in Westminster Abbey—

“ Not here ! the white North had thy bones ; and thou,
 Heroic sailor-soul,
 Art passing on thine happier voyage now
 Toward no earthly pole.”

It was a melancholy satisfaction to them to know that all that remained of their beloved friends would be brought back to the country, and would be laid to rest in the soil of the colony which they loved so well, and for which they endeavored to do so much. (Hear, hear.)

Mr. W. P. AULD, in seconding the motion, said that one and all admired the zeal which Mr. A. T. Magarey had put into the work of trying to rescue the lost men. There was one point made abundantly clear in the death of their friends, and that was that the strain of British blood flowed in the veins of Australians. (Hear, hear) The people of the towns knew nothing of the troubles and the difficulties which beset explorers. He could say no more.

The motion was carried.

Mr. C. SABINE moved—"That the following gentlemen be the members of the Council for the present year:—Messrs. S. Newland (President), A. T. Magarey, C. H. Goode, W. P. Auld, A. W. Dobbie, and J. L. Bonython, the Hon. J. L. Parsons, and Mr. J. A. Johnson, and that Mr. T. Gill be Treasurer."

Mr. L. H. SHOLL seconded the motion, which was carried.

The CHAIRMAN returned thanks for the honor which had again been conferred upon him.

Mr. A. T. MAGAREY replied on behalf of the Council. He would like to add that though perhaps the public were not all aware of the fact, such separations as that which took place at the place now known as Separation Well were necessary in the work of exploration. The object in making the Calvert party so strong was that it could be divided, and that separate tracts of country could be examined. The party had consisted of seven men and twenty camels, but had they desired to make one cut through the country only, such a large one would not have been necessary. He wished also to suggest that a message of sympathy be sent to Mr. L. A. Wells, who had worked with zeal and promptitude in trying to rescue his lost companions. He had made five trips to try to find them, and it was only the last which was successful, in that he discovered their bodies. So far, arrangements had been made to bury the late Mr. Wells and the late Mr. Jones together in the one grave, and it was his suggestion that the word "Together" should be cut on the tomb; for they had gone out together and had died together.

Mr. SABINE moved a vote of sympathy with Mr. L. A. Wells. That gentleman had undergone a great deal of suffering. He had done the best that could be done under the circumstances in connection with his lost companions. They should do that to show their confidence in him. A letter containing their wishes could be sent to Mr. Wells. (Hear, hear.)

Mr. PARSONS, in seconding the motion, said it was no more than Mr. Wells deserved.

• Mr. AULD, in supporting, said Mr. L. A. Wells would have been blamed had he not sent his two companions out as he had done.

The CHAIRMAN supported the motion, which was carried.

On the motion of Mr. PARSONS, seconded by Mr. A. W. DOBBIE, it was resolved to send a letter thanking Mr. Rudall for the great aid he had rendered in searching for the lost explorers. (Hear, hear.)

Mr. T. GILL said such a letter should be forwarded through the official channel—the West Australian Government, and the latter should be thanked at the same time. The South Australian Government should also be thanked for providing funds for search parties.

The CHAIRMAN said he would see that that was done.

The motion was carried.

Mr. DOBBIE moved that Messrs. C. Sabine and L. H. Sholl be reappointed auditors, and that the thanks of this Society be tendered to them for their work of the past year.

Mr. E. M. SMITH seconded the motion, which was carried.

Mr. W. STRAWBRIDGE moved a vote of thanks to the members of the Council for their work of the past year.

Mr. T. S. REED seconded the motion, which was carried.

Mr. AULD moved—"That this meeting expresses its continued loyalty to her Majesty the Queen, and congratulates her Majesty on the celebration of the sixtieth year of her reign."

Mr. STRAWBRIDGE seconded the motion, which was carried.

PROCEEDINGS
OF THE
Royal Geographical Society of Australasia.
(SOUTH AUSTRALIAN BRANCH.)

ELEVENTH SESSION, 1897-8.

COUNCIL MEETINGS.

July 19th, 1897.

Present—Seven.

Letter received from Mr. Borchgrevink asking what amount the Society would be likely to subscribe towards the proposed Antarctic expedition. Resolved that in view of the action of the Royal Geographical Society in London, this Society deems it unwise to move in the matter at the present time.

Resolved further, that this Council, while sympathising entirely with the proposed Antarctic expedition, considers that it should be Australasian in character, the various colonies sharing in the cost. This Council pledges itself to use its best endeavors to forward the enterprise.

August 10th, 1897.

Present—Seven.

Resolved, that in the interests of geographical science, this Council will be glad to allow the publication of the journal, maps, &c., of the Calvert Expedition, under its auspices, so soon as the position with regard to Mr. Calvert is determined.

Resolved, that this Council requests the Government of South Australia to communicate with Mr. Calvert, asking him his intentions with regard to the financial settlement of the affairs of the Calvert Expedition.

October 26th, 1897.

Present—Nine.

Received letter from the Royal Society of S.A. asking for the assistance of this Society in forming a deputation to the Government on the question of insectivorous birds, predatory insects, &c. The President and Mr. Johnson were appointed as representatives of this Society on the deputation.

March 1st, 1898.

Present—Six.

Resolved, that a letter of condolence be written to the relatives of the late lamented explorer, Mr. Ernest Giles.

March 4th, 1898.

Present—Six.

Resolved, that the following officers of this Society be authorised to receive and to give a receipt for the legacy of £2,000 due to this Society, bequeathed by the late Sir Thomas Elder, G.C.M.G.:—Messrs. S. Newland, T. Gill, and E. H. Newman.

Resolved, that the legacy be invested by the Honorary Treasurer in South Australian three per cent. consolidated stock.

May 3rd, 1898.

Present—Seven.

Secretary reported that a paper had been read before the Society on April 14th by Captain Henry V. Barclay, on "Easter Island and its Colossal Statues."

Received letter from Sir E. T. Smith, asking for a contribution from this Society to the proposed Elder Statue Fund.

Resolved, that this Society votes ten guineas as a donation to

the Elder Statue Fund, but considers it would be preferable to devote the fund now being raised to the erection of an Elder Science Hall, in which case the Society would be prepared to subscribe at least £1,000, provided its requirements were met and its rights fully recognised. The object in the erection of this building would be a home for the various Scientific Societies, and the Council feel that this mode of perpetuating his memory would be far more in accordance with the wishes of the late Sir Thomas Elder than the erection of a marble statue.

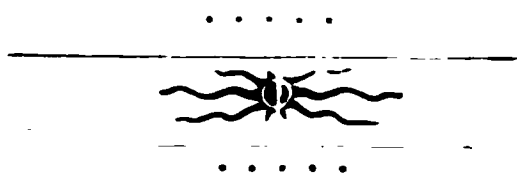
The Honorary Treasurer laid on the table an old map of Africa, offered for sale to the Society. Resolved that the matter of purchase be left in the hands of Mr. Gill.

May 23rd, 1898.

Present—Seven.

- . The President reported donation to the Society by the Surveyor-General of Wells's plan of the route traversed by the Calvert Expedition. To be acknowledged with thanks.

The draft of the President's address at the annual meeting on the 27th prox. was read and adopted.



ATTENDANCE ROLL

SESSION 1897-8.

COUNCIL MEETINGS HELD, 7.

S. Newland, J.P.	.	.	.	.	.	.	.	5
A. T. Magarey	.	.	.	.	.	.	.	6
W. P. Auld	.	.	.	.	.	.	.	5
J. L. Bonython, J.P.	.	.	.	.	.	.	.	6
C. H. Goode, J.P.	.	.	.	.	.	.	.	2
J. A. Johnson, J.P.:	.	.	.	.	.	.	.	2
A. W. Dobbie, J.P.	.	.	.	.	.	.	.	4
Hon. J. L. Parsons, J.P.	.	.	.	.	.	.	.	3
C. H. Harris	.	.	.	.	.	.	.	2
E. H. Newman	.	.	.	.	.	.	.	6
Thos. Gill, J.P.	.	.	.	.	.	.	.	6

ROYAL
Geographical Society of Australasia
(S.A. BRANCH).

President :

SIMPSON NEWLAND, Esq., J.P.

Vice-President :

JOHN HOWARD ANGAS, Esq., J.P.

Hon. Treasurer :

THOMAS GILL, Esq., J.P.

Hon. Secretaries :

CHAS. HOPE HARRIS, Esq. | C. H. NEWMAN, Esq.

Assistant Secretary :

THOS. S. REED, Esq., J.P.

Members :

WM. P. AULD, Esq.	A. T. MAGAREY, Esq.
SIR LANGDON BONYTHON, K.B.	G. G. MAYO, Esq.
A. W. DOBBIE, Esq., J.P.	HON. J. L. PARSONS, J.P.
CLEMENT SABINE, Esq., J.P.	

Candidates for admission must be proposed and seconded by members, and it is necessary that the full name and residence of such candidates should be clearly printed on the proposal.

Every member is required to pay an annual subscription of half a guinea, payable in advance on the 1st of May in each year.

The privileges of a member include admission (with one friend) to all meetings of the Society, and the use of the Society's room. Each member is also entitled to receive a copy of the proceedings and papers of the Society.

ROYAL GEOGRAPHICAL SOCIETY OF AUSTRALASIA.

SOUTH AUSTRALIAN BRANCH.

THE Annual Meeting of the SOUTH AUSTRALIAN BRANCH of the ROYAL GEOGRAPHICAL SOCIETY OF AUSTRALASIA was held on Tuesday afternoon, June 7th, 1898, in the Union Hall, Pirie Street. The chair was taken by Simpson Newland, J.P., the President.

The Minutes of the last Annual Meeting were read and confirmed. The Hon. Treasurer (T. Gill) read the financial statement of the past year, which showed balance from 1896-7, £7 6s. 4d. Receipts for 1897-8—Legacy of Sir Thomas Elder, G.C.M.G., £2,000; subscriptions, &c., of members, £60 18s. The payments were £52 7s. 10d. Invested in three per cent. consolidated stock, £2,000. Balance in hand and in bank, £15 16s. 6d.

The President then delivered his ANNUAL ADDRESS as follows:—

President's Address:

BY

SIMPSON NEWLAND, Esq., J.P., PRESIDENT.

GENTLEMEN.—The proceedings of the South Australian Branch of the Royal Geographical Society for the past year have been marked by no special features, but are by no means devoid of interest; indeed, many subjects of great interest have occupied the attention of your Council.

Since the last Annual Meeting in 1897, your Council has held seven meetings, during which period there have been elected two members of this Society.

There have been two papers read during the year—On June 14, 1897, by the Hon. J. L. Parsons, "On Things Japanese"; and on October 19th last, by A. T. Magarey, Esq., "On Tracking, by the Blacks."

The Society has to regret the loss by death of Sir Henry Ayers, G.C.M.G., and of Mr. W. K. Simms, who were among its most valued members, who ever took a deep interest in its progress, and whose names were coupled with Sir Samuel Davenport as founders of the Society. The late Mr. T. Worsnop was also one of our earliest members, and also took an active interest in this Society, as shown by his frequent contribution of papers on Ethnological subjects and especially those relating to our Aborigines. Mr. Fabian, the late City Treasurer, was also a warm supporter of the Society almost from its first inception.

The roll of Australian explorers has been further diminished by the death of the late Ernest Giles, whose name will always be held in remembrance by geographers in general as one of the prominent explorers who have successfully traversed the sandy deserts of Central Australia.

ANTARCTIC EXPLORATION.

For some years past the scientific and commercial advantages to be derived from an examination of the South Polar Regions have been discussed before the various Geographical Societies of the world.

The Royal Geographical Society has been urging the British Imperial Government to equip an expedition for the purpose, or, to employ a portion of the British Navy to explore the supposed Antarctic Continent. The cost is estimated at about £150,000, but so far the Imperial Government are not prepared to expend such a large sum in scientific research in that direction. The several Australian Governments have also been appealed to for pecuniary assistance, and the subject was discussed at the Conference of Premiers held in Hobart in February last. The Conference decided that the Australian Governments were unable to assist in the projected enterprise.

So far back as June 17th, 1891, the matter was brought before the South Australian Parliament by the Hon. J. L. Parsons, who pointed out the scientific and commercial results that would accrue from the fitting out of an expedition to examine the Antarctic regions. Very little interest appeared

to be taken in the question, and after a short discussion the motion was negatived.

Your Council has watched with keenest interest the fitting out of several exploring expeditions which have been projected to the Antarctic regions. A small expedition in a vessel named the *Belgica*, under M. de Gerlache, reported to have been equipped by the Belgian Government, is now in Southern latitudes on its way to fulfil its mission, which is mainly Oceanic research.

Another expedition, the cost of which is guaranteed to a large extent by Sir George Newnes, Bart., is now being equipped and will probably sail in July next under the charge of Mr. Borchgrevink. It may be remembered last year Mr. Borchgrevink, who had shipped in a Norwegian whaler on an Antarctic cruise in 1895, interviewed the Councils of the several branches of the Royal Geographical Society of Australasia in the hope of raising funds for an expedition to the South Pole.

Your Council had the pleasure of an interview with Mr. Borchgrevink, who called here on his last return to Europe, and he was informed that while the Council heartily sympathised with his project and had every confidence in him as the leader of an expedition, they did not feel justified in taking action as a separate body, as they considered such a movement should be Australasian in character, the various colonies sharing the cost. Since Mr. Borchgrevink (the leader of the Newnes' party) was in Adelaide, several communications have been received from him relative to the progress he was making in his proposed expedition, and soliciting the co-operation of the Council in obtaining funds from the Colonial Governments and private individuals in furtherance of his great undertaking. Your Council regrets that their efforts in this direction have not been responded to. An object of so much importance to the future welfare of all the Australian colonies, and the advancement of science, surely merited a liberal support. That Sir George Newnes should have undertaken the responsibility of the expedition deserves our warmest eulogium and thanks, and that brilliant success may attend Mr. Borchgrevink and his party is the ardent desire of all.

The Council fully realise the importance of a detailed examination of this unexplored territory, which so far as known is the reverse of the North Pole, not only in its position but generally in other respects. In the Arctic area the sea where open is easily navigable with no formidable billows; the land is interspersed with valleys, which are either filled with glaciers or are covered with verdure and with flowers in profusion. In

its various districts are found the Samoyeds, the Eskimo, and the Ostiaks. The native animals are the polar bear, the reindeer, and the fox.

In the Antarctic area there are, so far as known, no harbors ; the sea is tumultuous and navigation much more dangerous. On the land no green valleys exist ; ice of exceeding thickness covers the ground, whilst several volcanic mountains, in active operation, have been discovered. No human being claims the South Pole continent as his native country, and none of the large animals mentioned exist in the Antarctic regions. The waters, however, abound with whales, seals, and fish, which in a commercial sense may prove of immense importance to the Australian colonies.

ETHNOLOGY AND ANTHROPOLOGY.

Our obituary includes the name of the late Thomas Worsnop, who had for many years taken a great interest in all matters relating to the manners and customs of the Australian aborigines. His last compilation entitled "The Aborigines of Australia," was issued from the press only a few weeks before his death. The cost of printing was partly borne by the Government and partly by subscription. Although not so exhaustive or complete as that published by R. Brough-Smyth, "The Aborigines of Victoria," or that published by E. M. Curr, "The Australian Race," it is nevertheless a valuable handbook of reference on the manners and customs of the native races of Australia. Whilst the Government of this province is to be commended for the assistance it has at all times afforded in publishing and printing books and pamphlets on the manners and customs, and also vocabularies, of the various tribes of the South Australian Aborigines, it is yet to be regretted that no comprehensive work on the South Australian Native tribes has been published.

The study of the human race is one of the most interesting branches of science, and the opportunity of studying the daily life and habits of a primitive people has, I regret to say, not been availed of in past years to the extent that circumstances justified. Even now it is not too late to urge upon the Governments of the several Australian colonies the desirableness of taking immediate steps to preserve the traditions and memorials of the remnants of such tribes as now exist throughout the settled districts of the Australian continent.

The work must be undertaken without delay, as every year now brings with it the extinction of some tribe, and the obliteration of existing traces or records of a rapidly decaying people. The Adelaide tribe, once numerous, is now extinct. The same may be practically said of the Encounter Bay tribe,

which, when Europeans first landed, was also numerous and powerful. The Port Lincoln tribe, formerly fierce and numerous, is now reduced to less than a dozen aged and decrepit men and women. As they have no children the tribe is doomed to rapid extinction. Many other tribes in this and the neighboring colonies are similarly circumstanced, and it behoves the various scientific societies of Australia to take early action in this important subject. The Australian race has no history. As their supplanters it is our duty to collect and record all available information of their customs and traditions. A work of this nature could not be undertaken by, or entrusted to, one individual. Scientific men in each of the colonies are ready and willing to gratuitously undertake this valuable and important work.* The expense need not be great, probably £100 contributed annually for a few years by each of the colonies of Victoria, New South Wales, Queensland, Western Australia, and South Australia, would suffice for collecting the necessary data, and for photographing typical natives, male and female, of each tribe. Its publication could be a matter for subsequent arrangement.

It should be recorded that Professor Krause, of Berlin, visited Australia last year in the interests of anthropology. His enquiries were, however, confined to one division of that science. I look forward to the receipt of his report, in due course, with deep interest.

RELICS OF EXPLORATION.

Attention has been drawn to the gradual erosion of the French inscription on a rock at Hog Bay, Kangaroo Island, made by the officers of the French surveying ship *Le Geographe* in 1803. After nearly a hundred years' exposure to the elements, the inscription is naturally becoming indistinct.

Some time since the matter was discussed at one of our Council meetings, and I, with Sir Langdon Bonython—I trust he may live long to enjoy the honor conferred upon him by Her Gracious Majesty and acquire others—was deputed to interview the Premier. The Premier promised to consider the question of encircling the rock with iron railing, but nothing definite has yet been decided upon. The suggestion of removing the face of the rock with the original inscription to the Adelaide Museum the Council will oppose. It is suggested that the existing original inscription should be carefully deepened, and a transparent cement applied similar to that used on Cleopatra's Needle on the Thames Embankment. An iron railing would also appear to be a necessity to prevent a recurrence of the acts

*The co-operation of the Royal Society of S.A. is promised in this matter.

of vandalism that have at different times been perpetrated on the rock. Why our few monuments should be disfigured and mutilated by silly, thoughtless visitors, it is hard to conceive.

Flinders' monument on Stamford Hill, Port Lincoln,* is another scene of nefarious vandalism. This was a beautiful, polished, white marble monument, refaced by the South Australian Government in 1866, at a cost of about £700; now the lower portion is literally destroyed by the idiots who have chipped their puny, insignificant names on this monument, sacred to the memory of the discoverer of South Australia.

May the rising generation of South Australia be taught to revere the few historical monuments we possess.

AUSTRALIAN EXPLORATION.

Considerable knowledge of the interior of Western Australia has been gained by the Exploring Expeditions of the Hon. David W. Carnegie, conducted by himself personally; by the Calvert Expedition, led by Mr. L. A. Wells; and by the South Australian Government Expedition, conducted by Mr. S. G. Hubbe.

The Hon. David W. Carnegie, son of the Earl of Southesk, has been kind enough to furnish this Society with a report of his explorations in the interior of Western Australia, between Coolgardie and Kimberley and back; and the Government of Western Australia has published a map showing the route travelled over by him. The Expedition consisted of four white men—the Hon. D. W. Carnegie and Messrs. Breaden, Massie, and Stansmore (all Australian born)—and a native tracker, with nine camels.

Mr. Carnegie states his objects in fitting out (at his own cost) and leading an expedition into the little known interior of Western Australia were threefold.

1. To ascertain whether or no auriferous country existed between the Coolgardie and Murchison fields in the south and the Kimberley in the north, to find out the nature of the large extent of unexplored country between Forrest's route of 1874 and Warburton's of 1873.
2. To ascertain or otherwise the feasibility or otherwise of a direct stock route between the two goldfields, or between the Coolgardie goldfields and the central portion of South Australia.
3. A desire to distinguish himself in the world of travel, and to satisfy a craving for wandering in unknown parts.

*Flinders' monument was erected in 1841, the cost was borne by Sir John Franklin.

As to the first object of the Expedition, Mr. Carnegie says he is forced to the melancholy conclusion that the greater part of the vast interior of Western Australia, as seen by his party, is useless to man or beast. That all idea of any auriferous connection between Kimberley and Coolgardie must be banished from our minds, but he considers it most likely that gold will be traced from Lake Way to the Opthalmia Range to the north-west goldfields.

On the second object he says that a direct stock route between the Kimberley district in the north and the Murchison-Coolgardie fields in the south can by no possibility be found.

On the third object Mr. Carnegie is naturally silent, but all who have read the report of his journey through one of the most dreary and inhospitable regions of Australia, hitherto unexplored, will readily accord to him that well-merited distinction he so justly deserves of adding his name to the roll of Australian explorers.

We shall be glad to hear that the Royal Geographical Society has acknowledged his services in a suitable manner.

One noticeable feature of his Expedition is the unanimity and good feeling which appeared to have existed in the party.

Unfortunately the happiness of the party was marred by the sudden death of one of its members. After the Expedition had passed through the desert Mr. Stansmore slipped while climbing a steep rock; the gun he was carrying went off, and he was shot through the heart. His death was instantaneous, and he was buried on the bank of the River Margaret. A tree in the vicinity records the resting-place of this additional martyr to Australian exploration.

THE CALVERT EXPEDITION

Last year I dwelt at some length on this unfortunate Expedition. Although more than twelve months have elapsed since the return of the leader, Mr. L. A. Wells, to Adelaide, the agent of the promoter of the Expedition is still unable to close the accounts of the Expedition owing to the failure of Mr. Calvert to remit the necessary funds. Some months ago this Council felt compelled to report Mr. Calvert's *laches* to the Royal Geographical Society, of which he was a member. Though entirely beyond the control of your Council this matter has occupied much of its attention. I hope, failing the receipt at an early date of the necessary funds from Mr. Calvert, that when Parliament meets, it will authorise the immediate payment of the sums due to the intrepid leader of the expedition and his

companions. I should like to intimate that this Council has approached His Excellency the Governor, asking his valued influence with the Imperial authorities, in order that that the Albert medal may be conferred upon Mr. L. A. Wells, the leader of the Calvert Expedition, and Mr. Rudall, the leader of the West Australian Government Search Party, in recognition of their heroic conduct under great privations in repeatedly entering the arid and great sandy deserts of Western Australia.

It was my privilege, in presiding at a large and influential meeting which was held at the Town Hall in August last, to take part with my fellow-citizens in according a welcome to Mr. Rudall, on his visit to his friends in South Australia. At that meeting the Hon. F. W. Holder, Treasurer of South Australia moved the following resolution :—

“ That this meeting welcomes Mr. W. F. Rudall on his visit to Adelaide, and expresses its admiration of the persistent and heroic manner in which (as leader of the Western Australian Government Search Party) he conducted the search for Messrs. Charles F. Wells and George L. Jones, of the Calvert Expedition, and its deep appreciation of the services rendered by him in the prosecution of the search.”

This resolution was carried unanimously.

SOUTH AUSTRALIAN GOVERNMENT EXPEDITION TO WESTERN AUSTRALIA.

This Expedition, under the charge of Mr. S. G. Hubbe, was equipped by the South Australian Government for the purpose of ascertaining the possibility or otherwise of establishing a stock route between South Australia and the goldfields of the west.

Mr. Hubbe's report, published as a Parliamentary paper, contains interesting and valuable information of the natural features of the country traversed by the Expedition.*

ELDER STATUE.

A movement has recently been set on foot having for its purpose the erection of a marble statue in order to commemorate the valuable services and munificent gifts of the late Sir Thomas Elder, G.C.M.G., to this colony. While consenting to give a donation for this purpose, your Council feels that it would be far preferable to devote the fund now being raised, to the erection of an Elder Science Hall, as a home of the various scientific Societies in Adelaide, believing that such a method of perpetuating his memory would be more in accordance with

*Par. Paper, No. 51, of 1897.

what Sir Thomas Elder himself would have desired than the erection of a statue. To this alternative object your Council would (with the assent of the members) have contributed very largely.

STUART'S STATUE.

Your Council notes with much regret that the movement towards the erection of a statue in commemoration of the arduous labors of that renowned explorer, Stuart, is yet in abeyance for want of the necessary funds to carry out the work.

PROTECTION OF NATIVE FAUNA.

During the past year the Royal Society of Adelaide inaugurated a movement with the view of obtaining protection for and disseminating knowledge of the useful birds and insects of the colony. The co-operation of your Council was solicited and cordially responded to, and subsequently a deputation of members of the several societies waited upon the Hon. Dr. Cockburn, the then Minister of Education, requesting that a sum of £300 might be devoted to the above object. Your Council regret, that while expressing the fullest sympathy with the request of the deputation, the Minister held out no hope of financial assistance. We deplore the extensive ignorance displayed in the wanton and cruel waste of the beautiful and useful bird life that continues almost unchecked. The machinery for the prevention of much of this is ready in legislative enactments, and simply requires to be put in operation ; but in some respects the authorities are the greatest sinners.

LIBRARY AND MAPS.

As President, I may well call the attention of the members of the Society to the valuable library they possess, consisting of 220 volumes. Of these, 129 volumes have been bound during the last three years up to this date, due to the indefatigable exertion of Mr. Reed, who has shown the deepest interest in the subject. There are also upwards of sixty maps, many of large size and great value ; but until the Society is in a position to obtain adequate office accommodation, these cannot be seen to advantage. I hope that during the ensuing year your Council will by means of the liberal bequest of Sir Thomas Elder, be able to make arrangements in this direction, as I feel that much of the success of the Society depends upon it.

As bearing upon this matter I may state that the sum in question has, pending its being required, been invested in Government securities at interest.

MRS. NICHOLLS' GIFT.

The Society is indebted to Mrs. Nicholls, of Marryatville, who, through Mr. Alfred Wells, has presented to it a most interesting memento of past exploration. The thermometer used by the immortal explorer, Captain Sturt, during his memorable exploration into the interior of Australia in 1844-1846.* This valuable memorial of a great man and a famous journey has been presented to the Society by Mrs. Nicholls, an old lady of 90 years of age, who received it from Captain Sturt almost immediately after his return to Adelaide from his eventful expedition. According to her express wish and sole stipulation, the thermometer has been deposited in the public museum for safe keeping until the Geographical Society is in possession of fitting rooms of its own for the reception of this and other valuable relics of our early history, relics that must daily become of deeper interest.

It is a pleasure to me to place on record my acknowledgement of the able assistance rendered in the compilation of this report by the zealous Treasurer (Mr. Thos. Gill) and the Assistant Secretary (Mr. Reed). Both gentlemen merit my warmest thanks, and the thanks of the Society for an untiring zeal in watching over its interests, and in promoting its welfare.

Since the last report the following publications, proceedings, and maps have been received, and for which the Society is much indebted to the donors, viz.:—A valuable series of the Geographical Journal, also, Proceedings, sent by the Royal Geographical Society; Proceedings of the Royal Colonial Institute, London; Geographical Societies of Scotland, Liverpool, Manchester, and Cornwall; Smithsonian Institution, Boston, U.S.; American Geographical Society; Geographical School Journal; American Philosophical Society, New York, U.S.; Literary Society, Quebec; Reports de Société Géographie Commerciale; Compte Rendu des Seances; Revue Géographique Internationale, Paris; Société de Géographie Marseilles, Touloux Havre; American Museum of Natural History; Proceedings Sociedad Geographie de Lima; Société de Neuchateloise, Zurich, Finland, Heidelberg; Surischen Wüste by Dr. Max Von Oppenheim; Les Excursions de Prince Roland Bonaparte, Paris; volumes of Proceedings, New South Wales, Victoria, Queensland; Minister of Mines, Sydney; Australian Museum, Sydney; School of Mines; Government Geologist (H. Y. L. Brown, Esq.), Adelaide; Royal Societies, New South Wales and South Australia; Department of Lands and Survey, New Zealand; Reports

*Narrative of an Expedition into Central Australia. London, 1849. 2 vols.

on the Murchison Goldfields, West Australia; Colored Map of Western Australia, from the Hon. Sir John Forrest, K.C.M.G., Perth; Mining Handbook of West Australia, from H. P. Woodward, Esq., F.G.S., F.R.G.S.; Reports, Department of Agriculture, Victoria; Sir Chas. Todd, K.C.M.G., Adelaide; the Postmaster-General, Queensland; first volume Royal Society of London, dated 1831; also, a Chart, dated 1846, showing proposed Communication between the East and West Continent, from John H. Angas, Esq., J.P.; Report of the Australasian Association for the Advancement of Science, from Professor Liversidge, F.R.S., Sydney; Report Geografischen Gesellschaft Wein; Paper on Horn Expedition by Professor Hahn Koingsberg; Map of Hon. D. W. Carnegie's Expedition, from H.M. Government, West Australia; Map of the World on Mercator's plan, with additions to date, from Dr. Berghaus, Gotha; and L. A. Wells' Plan of the Calvert Expedition, presented by the Surveyor-General, South Australia.

In surrendering my position as President for the past year, I have to thank the Society for the honor conferred upon me; the Council for the unvarying kindness and consideration with which each member has treated me; and the Hon. Secretaries and Hon. Treasurer for an assistance that has rendered my duties both light and pleasant.

Mr. W. D. Glyde, J.P., said, I beg to move:—"That the President's Address be adopted and recorded in the proceedings of the Society," and in doing so, I have much pleasure in expressing my full sympathy with the aims and purposes of this Society as evidenced not only in the acquisition from time to time of geographical knowledge, but especially in reference to its close association with the great work which has been carried on by various explorers throughout the length and breadth of Australia.

In reading the records of these explorers in days gone by, I have been impressed not only with the difficulties and privations they have undergone, but with the deep pleasure they seem to have taken in the work, which, in the face of all its difficulties and privations seems to have supplied them with the needful energy and pluck in facing and overcoming these difficulties and bringing their work to a successful issue. And as one new feature and stretch of country after another revealed itself to their gaze, perhaps those lines may have been suggested—

"As when some watcher of the skies
Sees a new planet swimming into his ken."

But whether this be so or not, the same pleasure they felt in their work is certainly shared by us—though in a lesser sense—

when we listen as we have now done, to the reports of their doings. I have felt much interested in this address and especially in the allusions it contained to the movement for the preservation of our native birds, a movement, which I trust, will not fall away for want of the money support needed to carry it through.

Mr. Clement Sabine, J.P., seconded the adoption of the President's Report. He remarked that the address contained much valuable information, and was replete with interesting details. Although it would hereafter appear amongst the published proceedings of the Geographical Society, he considered that there were many persons at a distance in the colony who would derive profit from the perusal of a paper which bore evidence of much careful preparation, and which they would be glad to see. He trusted the daily papers would insert it in extenso for the benefit of the outside public, and to arouse interest in the Society. There was so much subject for thought in the address, that he (Mr. Sabine) did not at the spur of the moment feel competent at the late hour to discuss. Both in respect to the records sought to be obtained from and with regard to the aboriginal natives, he would observe so far as his experience went, the natives had no traditional knowledge and all the information that could be obtained from them was of matters and events that had occurred within their own lifetime, so that in point of fact, it was impossible to obtain from them any data like early consecutive history of anything occurring prior to British occupation of their territory. Much, however, at present unknown about them, might be gathered, in addition to the published accounts already printed, which have been alluded to by the President. With respect to the inscription upon the rock in Kangaroo Island, Mr. Sabine agreed with the President that it would be unwise to remove a piece of the rock itself, as some one had suggested. It was an interesting piece of carving, but to his mind bore evidence of having been cut in an idle moment by one of the crew, and not by an officer of the French ship. As Captain Creswell had pointed out, some fencing or protection to the rock was required.

The motion was carried.

Mr. C. L. Whitham moved that the following gentlemen be the Council of the Society for the year 1898-99:—Simpson Newland, Esq., J.P., President; Sir Langdon Bonython, K.B., Messrs. A. T. Magarey, G. G. Mayo, A. W. Dobbie, W. P. Auld, Hon. J. L. Parsons, and Clement Sabine. Mr. Whitham said—"Mr. President and gentlemen of the Geographical Society, it gives me the utmost pleasure to submit these names to you, because I feel you will not only have a

most representative Council, but one capable of taking a broad view of the Society's interests, and of conducting its affairs with energy and thoroughness. Among the names I have submitted, I notice we have the press ably represented in Sir Langdon Bonython, literature by our able President, exploration by my friend Mr. Auld, and almost world-wide travel by several others. As the President has referred to the importance of protecting our native birds and harmless animals, I should like to add, before I sit down, that for some time past, as editor of the *Children's Hour* for classes III. and IV. of our schools, I have had the command of the eyes and ears of upwards of 30,000 per month of our school children, and that this matter has been receiving, and will continue to receive, very special attention in all our schools. I should be glad if the Council could see its way to setting apart a small sum each year to be offered to the readers of our little papers in prizes for essays on our native birds, animals, and flowers. I gave two prizes for similar papers last year, and about 80 children sent in competition essays. These essays came from the far north, the far west, the Kenmark district, and the south-east.

Mr. Stephen King seconded the resolution, which was carried unanimously.

Messrs. L. H. Sholl, J.P., and F. W. Giles were appointed auditors for the ensuing year.

Mr. E. W. Hawker, J.P., in moving vote of thanks to the President and the members of the Council for their past services, stated he had known the President a good many years, and that he had always shown himself a hard worker, and put his heart into anything he took up. The members of the Council, like those of other committees to be found wherever the Anglo-Saxon had settled, had carried out their duties well.

Mr. L. H. Sholl, J.P., seconded the motion, which was carried with acclamation.

The President returned thanks in the following words:—
“In returning thanks for the honor you have conferred upon me by electing me President for the third year, allow me to say I could have wished you had selected some other member of your Society. I know there are many gentlemen better qualified to perform the duties of President. But having accepted the position I will endeavor to promote the welfare of the Society to the best of my ability. It is with great pleasure I have listened to the speeches delivered by the gentlemen present. The subjects dealt with are of much interest and importance, and may well occupy the attention of the Government, the legislature, and our fellow colonists. Mr. Whitham's remarks

relative to the preservation of useful bird life and the good work he is doing in this direction among the rising generation in the public schools merit especial notice. Such training cannot fail to have a most beneficial effect in the future. Other speeches have touched on the interesting subject of the aborigines of Australia. I cannot but feel gratified at the consensus of opinion that in accordance with the ideas expressed in the address I have brought before you such mementos and traditions as exist should be collected and preserved. They are few, no doubt, but I know of several traditions myself, some of which are already in print. Others are mere fragments, yet characteristic, and perhaps all are worthy of a place among the memorials of a people doomed to early extinction. I cannot conclude without thanking Mr. Hawker and other speakers for the very complimentary things they have given utterance to; I only hope half of them are merited."



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of Australasia.

11th SESSION, 1897-8.

SOUTH AUSTRALIAN BRANCH.

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Tracking by the Australian Aborigine.

BY A. T. MAGAREY, ESQ.

Read October 29th, 1897.

The imperative necessity to procure food to sustain life is the powerful incentive amongst savage races of the earth, moving them to go in search of the needed supplies. In prosecuting the search for food the savages must employ craft, and they naturally become skilled in all the arts of the chase. The need for skill in the pursuit of game is proportioned to the difficulty of capture, or the scarcity of supply. Since the continents of Asia, Africa, and America possess, each of them, comparative abundance of food supply, the aboriginal inhabitants of those countries do not manifest special aptness in the art of tracking.

In America, where powerful rival tribes waged frequent war for possession of favored hunting grounds, their craft was mainly developed in the direction of tracking enemies over prairies, through the forests, and in guarding against surprises from their wily foes. In the winter season of the northern regions, the American Indian had to exercise his best hunter craft in tracking, by following traces left by game in the snow. He exhibited special skill when the trails were rendered difficult through being partially obliterated by fresh falls of snow. All such tracking, however, is child's play in comparison with the perfectly marvellous skill in the art possessed by our truly gifted genius, the Australian aborigine.

The African "spoor"-artist is good; the American "trail-hunter" is better; but our own soft-tongued aborigine "tracker" is a prince in comparison with them all. Keen-eyed, watchful, patient, tireless, dogged, sure, he seldom fails to run his prey to earth, whether it be lizard, snake, wallaby, kangaroo, emu, camel, cattle-killer, goal-breaker, or murderer.

In large areas of Australia, and especially amidst the arid regions of its central interior, the food supply for man is very scant. In order that he may keep body and soul together, and obtain even a bare subsistence,

the native has to bring into play, at times, all the forest lore and hunter craft that is in him. It is necessary that every member of the tribe should be skilled in the hunt that he may do his share in obtaining supplies. Each one is trained from early infancy in the difficult, but most necessary art of earth sign reading. No sooner does the dusky child of the wilds of Australia begin to leave his mother's head-borne coolamin cradle, or netted shoulder-hammock, than he is set to chase and capture some living thing. A small lizard, for example, will be secured by his lubra mother, and placed close before his baby fingers. The lizard being released, runs away and hides beneath a handy stone, a sheltering grass-tuft, or in a hole in the sand. Upon hands and knees the embryo hunter tracks the game to its hiding-place. The triumphant capture is effected, aided no doubt by elder brother, or sister, or admiring lubra-mother. When a little older the youthful hunter is rewarded by being allowed to feast upon the captured prize.

Thus step by step the youngster rises in proficiency until beetles, spiders, ants, centipedes, scorpions, and such like fairy trackmakers are followed over the tell-tale ground. Such training is continued until manhood is reached; until of gliding snake, high-stepping iguana, bounding wallaby, flying euro, stately emu, or the crafty, dangerous, lurking foeman, all the earth signs are seen, noted, interpreted, followed, or avoided, as circumstances may demand. To his vigilant eye the fresh, sharp-cut imprint, the up-stringing grass blade, but newly bent by the swiftly passing foot-tread, each tells in its own way its own story.

Blown sand, or grass blade, or whirled leaf, resting on the imprint, tells to the dusky searcher its tale of hours that have vanished since the trail was made; whether to-day, yesterday, or weeks ago. The tiny fleck of fur, of opossum rug, caught on the hanging bush as the fleeing wearer passed along; the cast-out "pituri" from the mouth of the aboriginal tobacco-chewer; the fresh-fallen ash or cinder from the lubra's firestick; each of these tells its own tale of when, and by which way, the passer, man or woman, had gone by.

The trail of the wily dingo, as he skulked along the wild man's path, often proves an aid in tracking natives, for this cunning prowler of the bush is often alert to find the leavings which his aboriginal countrymen may have cast aside, and follows their trail for the purpose.

When engaged in tracking upon anything like a clear trail ("clear" to his eye, not so to ours) the native expert scans the surroundings, not down on the ground close to him, as a white man would do, but casts his glance ten or twenty feet, or more, away to the front. Where trodden grass, or twig, or imprint in the sand, shows by the sheen of successive prints the trail he

so eagerly seeks to keep in view. Viewing the track in this way the mounted native tracker will go confidently forward at a hand-gallop, with head leaning now to one side, now to the other, of his horse's neck, keeping this up for long distances, or until more difficult country is reached, when the pace slackens. The white comrade by his side often wonders whether he is not being taken along on a false scent, but usually an old camp fire, or other evidence of being "warm" on the trail, will prove that the darkie knows what he is about.

The newly turned-over twig, pebble, sand grain, or grass shaft, utterly unrecognisable by the white man, is readily seen and appreciated by the aborigine. So skilled in his work is the native, that the footprints in the sand of any of the members of his tribe, or of any acquaintance whose print he has seen, is as certainly recognised as would be the photograph of an acquaintance by any of our "civilised" race. Any slight peculiarity of toeprint, foot-pattern, solemark, or heelmark is noted. So also is the length or style of stride; and "That one is Munn-gin-a, or Tok-i" (indicating a footprint) is as confidently asserted as though the face of the owner of the foot was before him. A mother, or a sister, missing sight of a child in camp, instantly picks out the track of a baby toddler from amongst all the others, and quickly runs down the little Rambler if it has wandered away into the scrub. Whether a trail was made before or after rain or windstorm, whether there is new or old grass growing in the footpad, these are points of value and interest in seeking for lost bushmen.

So, too, if a bird, or dingo, kangaroo, or camel is thirsty, and travelling eagerly towards water to drink, the stride is long and direct. If after it has had a drink at a water the animal is satiated or browsing, the trail is wandering hither and thither, and the shortened stride shows leisure and presence of water at the time the trail was made.

A gentleman states that many years' since he was travelling north of Adelaide, accompanied by a native lad. The lad's father lived south in the vicinity of the city. After a wearying ride, at the close of hot day they came upon a waterhole at which they proceeded to water their thirsty horses. Suddenly the lad sprang from his horse, uttering an exclamation of surprise as he did so, and stooped low to examine the mud at the edge of the water. He excitedly informed his master, "My father been long a this waterhole to-day." Knowing that the father had been left near the city when they had started on their journey, the gentleman expressed his incredulity. He got down and narrowly examined the impress of an adult human foot stamped into the mud at the edge of the waterhole. He noted a peculiar small round knob of the mud rising up in the heel print of the footmark, and wondered how it had been caused.

A short ride to the top of a ridge, a glance around, and a smoke was seen rising at no great distance. Riding over to the smoke a camp was discovered, and sure enough the lad's father was one of those encamped. He had been suddenly summoned to go North. An examination of the man's foot revealed the fact that he had an old wound near the heel resulting in a peculiar sunken gap in the flesh. It was this wound which had so moulded the yielding mud as he stooped to drink as to form the peculiar protuberance seen at the water. The lad was right in his identification, and also as to the time the visit had been made.

ELUDING PURSUIT.—In order that he may elude the vigilance and craft of these trained sleuth-hounds of the desert, the cunning native has devised the puzzling death shoe, or devil shoe, by use of which he may, to some extent, conceal his tracks, and throw the pursuer off the scent. Named in the North "Koo-dichee," in the West "Kooll-ea-wypp-ea," this shoe is intended to enable the tribal avenger of blood, or the wife-hunter, to effect his purpose and slay his doomed victim or steal his coveted bride, as the case may be, with little risk of successful pursuit. The death shoe is shaped very like the hull of an old Dutch vessel, blunt at the ends, broad at the bottom. The main, or under portion of the shoe is formed of felted emu feathers, and is usually 9 or 10 in. long, $3\frac{1}{2}$ in. wide, and 2 in. thick. A netted web made from fur, or of human hair, is fastened round the outside edge, forming an "upper" to the shoe, with a narrow strap of the same material passing across the instep, holding the shoe in place. The imprint made by the foot, shod with this footgear, is so light, so faint, and so closely resembles the impress of blown grass, that it becomes most difficult, and often impossible, to trace the wearer. No indication of direction is given by the shoeprint, since both ends are alike, neither toe nor heel being indicated. When a raid is intended, or a murder is to be committed, these shoes are carried by the intending perpetrators until the vicinity of the victim's camp is reached. The shoes are now put on, the camp is stealthily entered, the deed done. Amidst the ensuing confusion, if the camp is aroused, the marauder steals off, and usually gets clear away. Sometimes sixty or one hundred natives will be on the warpath in a body. They will walk in Indian file, with death shoes on, each one stepping carefully into the foot-tread of the man in front, so concealing their numbers.

DESERT SANDALS.—Somewhat similar to the death shoe is the desert sandal, only recently brought to light by Mr. L. A. Wells, in the Great Sandy Desert, in the vicinity of Joanna Spring. They closely resemble the South Sea Islands coral shoe. The sandal is made from the bark of the stem of the bird flower shrub (*Crotolaria Cunninghami*) woven so as to

form a fairly substantial sole, with cross ties of the same material passing over the instep to keep it in place. The purpose is to protect the foot from the scorching heat of the sand, which in those tropic regions in summer is so intense under the direct rays of the sun as to be well-nigh unendurable, even by the toughened feet of the aborigine.

HIDING TRACKS.—A native desirous to elude pursuit resorts to various methods to attain his end. Amongst others are the following:—The pursued steps from rock to rock in favorable country, never, if he can avoid it, setting his foot on the tell-tale sand. He does not keep a direct course, but doubles and twists, so as to baffle his pursuers. This method is very common amidst the rocky ranges of the interior of Australia. If hard pressed, and the facilities offer, the fugitive conceals his trail by planting the fore part of his foot right underneath the down-sweeping stems of tuft grass, or black grass, springing forward, and to right to left, covering thus his trail at every stride. At times the foot is planted right on the tuft, if the grass will yield, and spring up into place again and not break. Following up such a trail is most tedious and difficult work. It calls for a surprising amount of patience. The tracker has, in such cases, with a stick in each hand, to press aside the drooping grass, and peer under the sheltering tufts, to discover the hidden track of his wily quarry. It may take hours to follow up only a few hundreds of yards trail, and much valuable time is lost in unravelling such a tangled line of footprints. An Ouldabinna (West South Australia) native states that the aborigines of that region obliterate tracks when eluding pursuit, by the use of branchlets of bushes. A forked twig with the leaves on is placed across the ankle, the foot in the fork, and the trailing leaves sweep the sand, so disguising the wearer's footprints.

ILLUSTRATION OF SKILL IN TRACKING.—M.C. Cowle, when pursuing the would-be murderers of Mr. Beattie, of Old Glen Helen station, Far North, had the trying experience of having to deal with both of these last forms of concealment of trail. His trackers were, however, skilled aboriginal experts. They followed the trail of the fugitives until they found by tracks that they had joined another mob of roaming natives, for a few days. The trackers ran these down, and discovered that the pursued had again changed their company, and had joined, and hunted, and camped with a new mob. The trail was still kept, and slept on, followed through scrub, over sand, across rises and ranges, until at length the men wanted were actually seen, covered with revolver, and taken prisoners. The dogged perseverance, the tireless patience, the constant strain of alertness and vigilance in carrying on such pursuit amidst such surroundings, and with such wily subjects for test of their skill,

all prove the pre-eminence of the Australian aborigine as a "tracker." A member of the Horn Scientific Exploring Expedition had secured a "clutch" of emu chickens. These were placed under a coop at one of the stations, and a black boy was told off to feed and look after them. Mr. Cowle, who tells the incident, was away for some hours on duty. On his return he discovered that the chickens had gone off. "Dick," the native lad in charge, was told that he must find his missing charges, and Mr. Cowle decided to accompany him, partly to watch his methods in the search and partly from interest in the tiny fluffy wanderers. After a preliminary run round Dick picked up the trail and started off in pursuit. Yard by yard he worked along; at times he would point to an indication and ask his white comrade, "You see 'um that one?" "No! my no see um." The eye of the white man could detect no sign. On again. Presently Dick pointed eagerly at the ground, calling out excitedly and half-scornfully, "Now you see 'um that one?" as much as to say "You stupid fellow you, you no see 'um now?" Mr. Cowle replied now, "Yes, my see 'um *that one*." "That one" was a faint baby-emu toe-tip print, impressed by the tiny foot in a puff of sand lying on the rock, the sand patch equal in size to a half-crown. Dick soon ran down the trail and recaptured his emus.

SAND PICTURES.—It is the custom of aborigines to indicate to comrades in the chase their success in hunting by making sand pictures on the ground, beside the path. If an iguana, snake, wallaby, emu, or kangaroo has been captured, the picture of the prize tells those following that they may cease hunting and make for camp, as enough food has been secured. Some of the artists are perfect adepts at drawing these sand pictures. Mr. David Lindsay's boy Dick, in 1887, was fond of drawing such pictures. Representations of lizards, snakes, wallaby, and emu footprints, of the human footprints, and of camel pad was delineated with marvellous rapidity and accuracy. Natives frequently engage in games of sketching, beside their camp fires. The youths of both sexes delight in exhibiting their dexterity. Fingers, palm of the hand, elbow, knee, or pieces of stick are used in executing these works of art. There is often considerable rivalry, and amidst merriment and excitement the onlookers decide who is the best artist. A sweep of the hand over the sand face clears the space for the next picture.

CHANGE OF DIRECTION.—When a native is travelling on before his comrades and desires to indicate a change of direction, he goes straight on for a short distance, then turns through the segment of a circle, crossing his previous track, and so forming a loop in the trail, then goes on again in the new direction. The purpose of the "loop" is to indicate to his friends that he is changing his course, thus preventing their

overrunning. A native will come to the side of a wide river of an evening and camp. In the morning he will raise a smoke, drive a stake in the ground near the fire, then planting his foot close to the stake with the toe pointed in the direction he intends to travel, leaves beside the camp fire the footprint which indicates his course. His comrades, crossing the river later on, examine the sight of his camp, and gather the import of the message he has left for them.

TRACKING ON TREES.—Natives, when in quest of game, search the bark of the trees for indications of the presence of the opossum in a tree. If the creature has gone down, and left the tree, there are no scratchings on the bark. If the opossum has, however, recently climbed up into the tree, and is at home, there are on the bark marks of clawing by the fore-paws as it drew itself upwards, and in the clawmarks, light bark dust, and loose stringlets or frayings of the bark, showing that the scent is warm. A side puff of the hunter's breath tests the freshness of the dust, and quickly decides whether it is 'possum or no 'possum.

VALUE OF THE ART OF TRACKING.—Some may raise the question of value now in the art of tracking. It may be answered that it is often of the utmost value. Without the aid given by the aborigine trackers the fate of the lost explorers, Messrs. Chas. F. Wells and George L. Jones, could not have been solved. Mr. G. A. Keartland, Naturalist of the Calvert Expedition, in a recent most interesting article,* speaking of the identification of the tracks of three murderers on the Oscar Range, W.A., says:—"Several footprints were noticed close to the body, and when asked whose they were, the boy (an aborigine) said, 'That one 'Pigeon,' that one 'Dick,' that one 'Bull.'" The issue was the killing of the first-named, he offering armed resistance to arrest, and the capture of the two latter. In connection with the search for the survivors of the recent (24th April, 1899) "Loch Sloy" wreck at Kangaroo Island, the aboriginal tracker, "Boko," a Kangaroo Island native, was of great service. He led the search party over a patch of rock quite confidently, and when questioned as to the grounds for his confidence pointed to a tiny fluff of material caught on the points of the rough-faced rock, torn from the covering with which the shipwrecked mariners had encased their wounded feet. He was puzzled and baffled in tracking the poor lost passenger Kilpatrick. The explanation of his difficulty was forthcoming, when on the discovery of the dead body later on it was found that the unfortunate wanderer had covered his feet with two pairs of socks, so

* The *Leader*, page 33, of 27th May, 1899.

protecting them from the cutting rocks, but at the same time rendering his track so faint that it was as effective as though he had donned the aborigines' death-shoes.

The subject has been very cursorily dealt with in the foregoing paper. Much remains still to be gleaned. There is ample room for all workers.

Whilst the white race of Australia avails itself of the skill of the eminently intelligent aborigine, it should be careful to attend to the claims and best interests of a race that will ere long have passed away from us for ever.



Easter Island and its Colossal Statues.

BY CAPTAIN H. V. BARCLAY, R.N.

Read April 14th, 1898.

When I consented to address the Royal Geographical Society on the subject of Easter Island, I had no conception that I should have to face a large public meeting, but rather to meet a few persons most of whom possessed a general knowledge of the subject, and were necessarily deeply interested therein. I therefore looked forward to having a general discussion, from which I hoped to gain information rather than be called upon to give a formal lecture.

Situated in an extremely isolated position in lat. $27^{\circ} 10'$ S., and long. $109^{\circ} 26'$ W., possibly few persons other than scientists have heard of this island or know its locality. Many other islands have been reported from time to time in its vicinity, and are shown on old charts. This, however, frequently occurs, owing to shipmasters unequipped with instruments of scientific value reporting the same island over and over again, in varying positions, according to their own notion of where they are. From time to time these doubtful islands are carefully searched for by the vessels of the Royal Navy, and if found wanting, are promptly obliterated from the Admiralty charts. The charts of the coast line of the whole world are originally made by the officers of the Queen's Navy, and these maps are constructed at vast expense. The Hydrographic branch of the Admiralty costs over £13,000 per annum for the London office alone, and their maps are available to the world at very moderate charges, thus giving to humanity a huge boon, which our Continental neighbors are not slow to take advantage of, although contributing nothing thereto—thus the world's mercantile community are indebted to the generosity of the British public for charts that enable their shipping, with hundreds of millions worth of cargo, and thousands of valuable lives, to pass in comparative safety over seas, the configuration of which, but for this large-minded distribution of knowledge, would remain almost unknown.

EASTER ISLAND AND ITS COLOSSAL STATUES.

Easter Island is but $11\frac{1}{2}$ miles in length by $5\frac{1}{2}$ miles in breadth at the widest part, and has an area of about 32 square miles. A considerable portion of it is occupied by extinct craters and lava beds, some of which are of vast dimensions, whilst the whole surface is strewn with stones and jagged pieces of obsidian, rendering walking, excepting on the clearer portions, very unpleasant. The soil is of great fertility and well covered with grasses, but there are no trees worthy of the name, the largest being paper mulberry bushes, with stems a few inches in diameter. It is recorded by some visitors that in former times there were larger trees on the island, but the accounts are contradictory and confusing.

Without entering into a detailed description of the geology of the island, I may say that the formation is purely of a volcanic character; lavas abound in widely diverse forms, from the hard basaltic to scoria quite as cellular as pumice, and in places conglomerate, showing that the older formations had been disturbed by volcanic convulsions, whilst a new flow of lava enveloped and formed the whole into a solid mass. Natural caves are numerous, and many of them bear evidence of having served as residences for the inhabitants at various periods of time. The hills have gently sloping sides, rising out of irregularly shaped plains, the soil of which is alluvial, having a substratum of volcanic ash, mud, and stones, covered with a formation of decayed vegetable matter and mixed with rich deposits of decomposed lava, washed down from the hills by the frequent heavy rains. Subsequent to the formation of this soil the expiring energy of the volcanoes appears to have been directed to strewing the surface with stones.

The coastline is precipitous, with lofty cliffs and headlands from 1,000 to 2,000 ft. above sea, having but very few inlets or beaches on which it is possible to land. On this unprotected coast, without harbors, vessels must be guided by the direction of the wind in selecting an anchorage. On the south there are good anchorages, with northerly or westerly winds, and with easterly winds Cook's Bay affords a fairly good anchorage. Generally Easter Island is a difficult place to land upon conveniently, and at times even dangerous, owing to the heavy swell. When I visited the island in H.M.S. *Topaze*, then the flagship on the South American station, we anchored in Cook's Bay, which is fairly sheltered from October until April, during which time the south-east trade wind blows constantly.

The earliest discoverer of this island known to history was Davis, the celebrated South Sea buccaneer, in 1687, although the position he assigned to it was far from correct. It was afterwards found by Roggeveen, and has since been visited by Cook, La Perouse, and many other navigators, nearly all of whom gave accounts of the island and its inhabitants which are

at complete variance with one another, and in many instances the writers were evidently possessed of most vivid imaginations. For instance, Behrens solemnly states as follows:—"With truth I might say that these savages are all of more than gigantic size; the men are tall, and broad in proportion, averaging 12 ft. in height. Surprising as it may appear, the tallest men on board of our ship could pass between the legs of these children of Goliath without bending their heads; the women cannot compare in stature with the men, as they are commonly not above 10 ft. high." Roggeveen states:—"The people are well-proportioned of limb, having large and strong muscles, and are great in stature. They have snow-white teeth, which are uncommonly strong; indeed, even among the aged and grey, we were surprised to see them crack large, hard nuts whose shells were thicker than our peach seeds." La Perouse contradicts the account as to their enormous height, and praises the beauty of the women, whom, he says, resembled Europeans in color and features. In one respect, however, all the navigators who have visited the place agree in expressing unbounded astonishment at the vast prehistoric remains with which this island abounds. It is, however, so destitute of wood that it has little to boast of in the way of beautiful scenery, and compared with the verdure clad islands in other parts of Polynesia it is quite a desert. Prior to visiting Easter Island we had an extensive voyage through the Marquesas and Society Groups, and spent many days at that gem of all islands, Tahiti. We were greatly disappointed at the first sight of the landing place at Cook's Bay; its dreary aspect caused quite a depressing effect on the whole ship's company. Many of us were aware that ancient remains of some kind had been reported to exist on Easter Island, but we little thought they would be of so great interest as subsequently proved to be the case, or that we should be so fortunate as to obtain for the British nation the valuable image, representations of which, by photography, I recently obtained at the British Museum (see plate 1). Our primary object in visiting this out of the way island was to verify its position on the chart, to search for certain other islands that were reputed to be in the vicinity, and then to make such a survey of the island as might be deemed desirable, in the course of which all available information regarding not only the physical formation of the country, but also such particulars concerning its present inhabitants, and the very extraordinary pre-historic remains, as could be obtained from all reliable sources. Many officers were employed on this service, and the result of their observations was handed to Commodore R. Ashmore Powell, the commanding officer, who was distinguished not only for his eminent war service, but also for his scientific attainments. Quite recently the Lords of

the Admiralty were good enough to permit me to have access to his report on Easter Island, and to furnish me with a copy of portions of it, and also with a report made subsequently by Captain Clark, of H.M.S. *Sappho*. Both of these reports, appended hereto, are of great scientific value, having been made by impartial persons of high standing, with the best possible opportunity of obtaining all the available information worthy of acceptance. The image, or perhaps more properly "statue," shown in the photograph (see plate 2) was discovered during the course of our investigations half buried on the side of the great crater near Cook's Bay, whereupon Commodore Powell gave instructions to bring it on board. Now it is not altogether an easy matter to transport a stone statue 8 ft. in height, and weighing 4½ tons, over a mile of rough country without timber, and then float it off to a ship in an exposed roadstead, whip it on board, and secure it on deck. However, we had many willing hands, and eventually not only did we succeed with the statue shown in the photo, but also with a second, but much smaller and less perfect one. Both of these now stand within the portico of the British Museum, where they have been subjected to much critical examination by many learned persons without yielding the secrets of by whom and when they were formed. You will notice that one of the views represents the back of the figure, and that there are certain markings thereon. Now these markings are deeply and carefully carved in the hard stone, and are similar in character and style, but not identical; they are found on the back of every statue on the island that remains in a sufficiently perfect condition. In all cases the backs of the statues are flattened, so as to display the markings, and there can be no doubt that these carvings have a direct reference to each of the statues. The stone of which they are made is a hard grey trachyle, with a specific gravity a little over two, and is very durable. Notwithstanding this, many of the statues are so defaced by time as to be almost unrecognisable. The workmanship throughout is remarkably good, but it is particularly noticeable that, although the carving on the back of each statue differs, the features and general expression of the face of all are alike, in fact wonderfully so, and utterly different in every detail to any known cast of face amongst the Polynesians of the present time. They have a singularly determined and calm look, and strike the beholder with a certain undefinable feeling of awe. The artists who constructed them seem to have expended labor only on the face and back, since the hands and arms are mere rude indications that such exist. The expression of the faces is sternly disdainful, and the aspect slightly upwards; the eye sockets are deeply sunk, and situated close under the massive brows; the nose is broad and straight, with

widely-expanded nostrils; the ears are comparatively rudely cut, and have long pendant lobes. The top of the head is cut off flat to receive the final and very extraordinary ornament, namely, a huge cylinder of reddish stone, shaped just like a modern belltopper without the brim. Each statue is constructed of a single stone, and some of them are of vast proportions, several being over 50 ft. high, and proportionately broad, whilst one measured 70 ft. high and weighed about 250 tons. These dimensions are exclusive of the cylindrical head ornaments, some of these alone being no less than 8 ft. high and 10 ft. in diameter, and weighing, by computation, over 20 tons. All of the statues terminate at the hips, and are cut off square and level, so as to permit them to stand when placed upright on their bases. When perfect, they stood on great platforms built of huge stones, in many cases admirably fitted together, and with well-dressed faces. Many of these platforms are of vast size, and are placed at irregular intervals all round the island near the coast, and on them these extraordinary statues stood facing the sea, as if to warn off all intruders, thus presenting a truly wonderful monument of the skill and engineering knowledge of the unknown people who constructed them. Over 500 statues have been counted on the island, and for their accommodation there are the remains of above a hundred great platforms, some of which are over 500 ft. long and 10 ft. high and wide, built of immense stones, put together without mortar. The statues are in all stages of completion, some being yet partly attached to the native rock in the quarry where they were in course of construction, surrounded by the chips of the workmen; others lying where they were left, on the way to the platforms they were intended to adorn. In short, everything points to a sudden cessation of work, and what more probable than that this was caused by some great volcanic catastrophe! Moreover, we have absolute proof that a great volcanic outburst occurred subsequent to the construction of most, if not all, of the statues, as many are now standing vertical, but partly buried in volcanic mud, dust, and scoria. In every instance when the statues were placed in a vertical position they stood on their carefully-prepared platforms. It is therefore only reasonable to assume that these were duly erected on their respective platforms, in which case we have evidence of an enormous outburst of volcanic energy that may well account for the sudden cessation of work and entire disappearance of the strange race of people who built these vast platforms and carved the great statues with which they were finally adorned. I attach very great importance to the evidence we have of the sudden cessation from work of the statue-builders, from whatever cause it may have occurred, demonstrating beyond doubt the fact of a vast volcanic outburst subsequent to the erection

of those particular statues, which could not fail to have affected the whole area of this small islet, and every being thereon, if, indeed, it did not annihilate them altogether. It is worthy of note in this connection that the whole island is one vast sepulchre. Look where you may, dig where you like, human remains are sure to be found. In fact I made quite a collection of skulls found under fallen statues or in the cavities beneath the platforms. These I subsequently presented to a scientific friend in England. The bones indicated that the people were not above the ordinary height, and the skulls referred to were in no way remarkable beyond that they appeared to denote an intelligent race. It does not follow, however, that they belonged to the statue-builders, and until a thorough investigation has been made in the island under the direction of scientific specialists, this point cannot be determined.

I have hitherto confined my remarks almost exclusively to the statues and a general description of the island, but the construction of the great platforms on which they were erected is worthy also of careful consideration. As is the case with the statues, a general similarity of design is very noticeable in all the platforms. Irregularly distributed over the island, but generally near the coast, and always facing the sea, these great structures are, like the statues, in widely varying states of preservation, some being now mere grass-grown mounds, whilst others retain their original form and show all the original details of their structure. The side nearest the sea is always a wall built with hewn stones of great size, frequently weighing upwards of 5 tons. These are very carefully fitted in a peculiar manner, many of the stones being triangular. There are also frequently smaller stones morticed into the larger ones, and in some instances having smooth polished surfaces. Behind this wall, and parallel thereto, is another, built of uncut stones, and between these two walls are numbers of small chambers, generally containing human remains, to which there appears to have been no means of access after the completion of the platform. Loose boulders fill the spaces between these chambers to the level of the top of the parallel walls, and the chambers themselves are covered over with large slabs of hewn stone. On the portions of the platforms where the statues stood, slabs of hewn stone were placed for their reception, and it is remarkable that, notwithstanding the great weight of some of the statues, they were placed on the platforms quite irrespective of the position of the chambers beneath, though always symmetrically spaced as regards the platform. At either end of the platform are long wing walls of uncut stone, backed with boulders, and on the side of the platforms furthest from the sea, a few stone steps descend to a

terrace of earthwork sloping gradually backwards to the surface of the ground. Some of these platforms had no less than 15 great statues standing on them; but now all have fallen, probably through the agency of earthquakes. Several of the early navigators reported these statues as standing on the platforms; but now all have fallen, and are generally broken by the violence of the shock. In many parts of the island, and particularly on the cliffs at the southern extremity, there are sculptured rocks covered with human faces, birds, fishes, canoes, hieroglyphics, and frequently repeated representations of a strange animal having a cat-like head and face and roughly human-looking form, with arched back, and long, slender legs and arms. This animal might possibly be intended for a conventional representation of a South American puma. Throughout the island there are numerous remains of ancient houses of curious structure, now for the most part ruined and buried in debris and volcanic dust. These dwellings are usually placed against a terrace of earth or rock, which forms the back. They are of all shapes, according to the formation of the ground, and are built of slabs of stratified basalt, of which there is abundant supply. They have only one small entrance, which is unpaved, but lined at the top and sides with large flat stones, and the walls being frequently 10 ft. thick. These passages are very difficult of access. The outer doorposts consist of vertical slabs of stone, frequently covered with remains of carving, planted in the ground on either side, the top being crossed by a heavy basaltic slab. The roof is very peculiarly formed by successive layers of slabs, each projecting beyond the other from either side towards the centre until they meet, when they are capped with another large slab of stone; the whole is then completed by covering the slabs with a mound of earth. The floors are of earth, trodden hard and smooth, the height from it to the ceiling being generally not more than 5 ft. The interior is divided into rooms, if they can be called such, usually about 12 ft. by 5 ft., and have communicating passages through the partitioning walls, which are generally 4 or 5 ft. thick. The interior doorways, which are somewhat more roomy than the exterior, rarely exceed 2 ft. square, or just space enough to crawl through slowly. The rooms are lined with smooth slabs, generally covered with quaint figures and hieroglyphics, occasionally sculptured, but much more frequently with the work of modern artists in red and white clays, which are common on the island. In each of these dwellings there is a recess in the walls that seems to have been designed for the reception of the valuables of the household.

Near a high bluff on the north-east coast there is an assemblage of dwellings extending for more than a mile by about half a mile in width. The buildings are generally

elliptical in plan, with the entrance passage facing the sea; they appear the most ancient, and remain intact. It is particularly remarkable that the recesses in the walls are covered with a true arch, supported by a properly-shaped keystone, instead of by a flat slab as is invariably used in other parts of the island. In front of the settlement there is a small inlet, where the land slopes gently towards the sea. This slope has been carefully paved down to the water, and from its end a narrow channel formed through the rocks to the open sea, so that boats might land here and be drawn up to a place of safety.

There is, however, quite another class of objects of great interest on this island to which I must refer. Personally I doubt their antiquity, and hope to show you conclusively that they cannot be attributed to the statue-building people, nor even be connected with them by any satisfactory process of reasoning. Commodore Powell's report describes the people as they were at the time of our visit, and I may add that prior to the advent of the missionaries in 1863 they are stated to have possessed a number of wooden tablets, with incised picture writing on either side, which had been handed down from their forefathers and were greatly valued. Possibly under the mistaken notion that these tablets were idols of some sort, the missionaries ordered all that could be found to be burned; however, a number of them escaped, and found their way into scientific hands, where they are yet undergoing much patient study. They also had a number of curious small wooden images, which doubtless represented either their gods or ancestors. We took home several of these, which are now in the British Museum. I am convinced that the small images have nothing whatever to do with the large stone statues nor with the race of people who made them. They are certainly remarkably ugly, but somewhat similar wooden images are to be seen in other parts of the Pacific. With regard to the tablets, it is uncertain whether they are really records left by the statue-makers; the preponderance of evidence is against their being so, and of one fact we may be certain, that none of the inhabitants possess the power of reading these tablets since the depopulation of the island by the Peruvians in 1864, when every man and woman that could be found was taken into deadly slavery, and the few that returned brought death in their train in the form of virulent smallpox. Those who are acquainted with the modern history of the island will remember that again in 1878 the missionaries deported some 300 of the unfortunate inhabitants to the Gambier Islands, leaving a miserable remnant of about 150 behind. When we visited the island in H.M.S. *Topaze* none of the natives pretended to know anything at all about the statues; indeed, they expressly stated so through the missionary who was residing amongst them, and,

moreover, willingly assisted in any way they could in removing the statues and other curios that we took from the island. In comparatively recent times, however, the demand for information seems to have created a supply, and an American warship obtained from an elderly native, under the influence of rum, long and highly poetic translations of some of the inscribed tablets which have been published under the authority of the well-known Smithsonian Society.

I have drawn your attention to a number of partly buried statues, proving that a vast volcanic eruption had caused a sudden cessation of work, which apparently was never resumed. Now in the large collection of legends and supposed translations there is not a word about any such vast catastrophe; and yet had these people been descended from those living at that time some dim memory of it must have passed down from father to son. Remember for a moment how the tradition of the flood has permeated the whole world, even to the most distant parts of the globe. Therefore, either the tablets were made subsequently to the date of the half-buried statues and by a different race of people, who possessed no knowledge of any catastrophe; or else supposing them to be made prior to the catastrophe, then we have the untenable position that the knowledge of how to read them was handed down from generation to generation, through a period when the whole island must have been almost, if not quite, uninhabitable, owing to the violent outburst of the great crater; and yet, though remembering the smallest detail of an obscure picture-writing, all knowledge of this terrible time is lost. Not only is this the case, but many of the so-called translations bear evidence of modern teaching. Here is a sample from the Smithsonian collection:—

TRANSLATION.

“What power has the Great King on the land?”

“He has the power to produce the ferns, creeping plants, grass, bushes, and all vegetation.”

“All hail the power of the Great King, who enables us to use as food yams, potatoes, and sugar cane.”

“What power has the Great King on land?”

“He has the power to clothe the turtles in hard shell, the fish with scales, and protects every living thing.”

“All hail the power of the Great King, who enables us to overcome the defence of the turtles, fish, and all reptiles.”

“What power has the Great King in the universe?”

“He has the power to create the stars, the clouds, the dew, the rain, the sun, and the moon.”

“All hail the power of the Great King, who enables us to appreciate the blessings of the bright stars, the lowering clouds, the gentle dew, the falling rain, and the light of the sun and the moon.”

“What power has the Great King upon the land?”

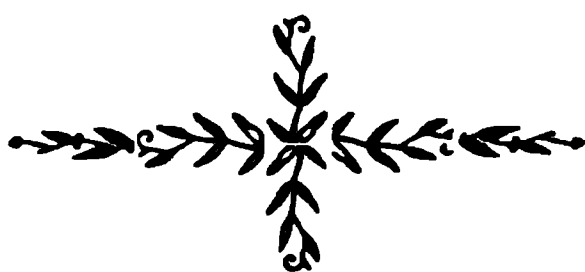
“He has the power to populate the earth, to create both kings and subjects.”

“All hail the power of the Great King, who has created the human beings, given authority to kings, and created loyal subjects.”

And so on. I think you will all agree with me that this extraordinary litany has a suspiciously modern swing about it. That, however, in former years the present race of natives had, in common with other Polynesians, some knowledge of a species of signwriting or totems, is satisfactorily shown by the following circumstance:—In the year 1770 possession was taken of the island by Don Philippe Gonzalez on behalf of the King of Spain, and after the formal deed had been signed by all the officers of the expedition the native chiefs were invited to sign also, which they complied with by drawing certain characters on the manuscript. It is noteworthy that many of the Maori chiefs signed the Treaty of Waitangi in 1840, using very similar characters, so much so as to lead to the conclusion that both are derived from the same source. These writings are shown in plate 3. It is also a curious coincidence that the Maoris have a stone statue which, they informed me, their ancestors brought with them from Hawaiki on their first coming to New Zealand. This statue was buried on the island of Mokoia, and was tapu, or sacred. No inducement could persuade them to give me any indication that might lead to its discovery, but it was once shown to Sir George Grey, whose person was also tapu, since he had been plunged, *nolens volens*, into a spring of very hot water. Subsequent investigation showed that this tale was at any rate partly true, if not wholly so. A stone statue was shown to Sir George Grey on the island of Mokoia, in the middle of Rotorua Lake. This is an extremely sacred spot to the Maori, where, they state, their most venerated objects are preserved. The Maori chiefs took him to the island and there showed him the site of an ancient temple, clearly marked by the flax plants—an oblong, with a curious recess at the end furthest from the entrance. Into this they went, and then, removing a few inches of the soil, disclosed a well-preserved statue of stone, life size. It was represented in a sitting posture, with the arms resting on the knees, and the face inclined upwards, and was made of a kind of porphyry. I believe that all trace of this curious relic has been lost since the great volcanic outbreak at Rotorua.

I have already drawn attention to the isolated position of Easter Island. I do not think that this can always have been so, it being highly improbable that so small an island could, even if carefully cultivated, of which there is no trace, have supported the vast population of which there are so many evidences of their existence. Either it was of much greater size, or was one of a group which have since disappeared. It may even have formed a part of a submerged continent connected with South America in ancient times. Long prior to the arrival of the Incas in South America a people existed there who have left monumental remains constructed with stones of

huge size, in a somewhat similar manner to the great platforms of Easter Island. Moreover, there is a strong resemblance between the recently explored and partly deciphered inscriptions of the Maya Peninsula and those on the rocks and statues of Easter Island. For my own part I believe that if ever a clue is found to the statue-builders of Easter Island it will be through careful comparison with the Maya inscriptions; but before this can be done it is imperative that a thorough scientific examination should be made of Easter Island. Wherever desirable, excavations should be made, and specially the bases of the partly buried statues should be examined, as they will most probably be found perfectly preserved by their shroud of volcanic dust. Thus a real service might be rendered to science, and more perfect knowledge obtained of the ancient inhabitants of the Southern Seas.



Detailed Report Upon Easter Island, or Rapa-nui.

Topaze, at Valparaiso, 3rd December, 1868.

SIR—I have the honor to submit for the information of the Lords Commissioners of the Admiralty the following detailed report upon Easter Island, or Rapa-nui (Great Rapa), Hanga-roa, lat. $27^{\circ} 10'$ S., long. $109^{\circ} 26'$ W., where the *Topaze* remained at anchor from the 1st to the 7th November:—

1. This island, which is 29 miles in circumference, is of a triangular shape, the northern and southern extremes being from 1,000 to 1,500 ft. high, sloping down towards the centre. So numerous, however, are the craters which rise up, that the land cannot anywhere be called low. The soil is decomposed lava, of a reddish hue, thickly strewn over with black lava stones.

2. The coast is rocky bound, and there are only two or three sandy creeks in all its extent. To the north and south it is high and precipitous, allowing of no landing, except in one snug little cove on the northern shore. On the east and west the coast is low, and much indented, so that, although rocky, landing may be effected in some places on the side that happens to be to leeward. Cook's Bay, or Hanga-roa, on the western shore, affords good anchorage from October till April, the season of the trades; in other months it is often a lee shore, but from the trend of the land a moderately-found ship could always get away should it be necessary to put to sea. In the accompanying plans the best anchorage is laid down, and I should not recommend vessels to anchor inside 16 fathoms. The ground then becomes hard, and further in there are large boulders. As we made the land during the night, and left in the evening, I can give no accurate description of its appearance at a distance, but, judging from what I saw on a fine moonlight night, it would, if made from the east or west, look like two islands.

3. On a near approach its aspect is not inviting, the coarse brown grass which covers the land scarcely looks like verdure, and not a tree is to be seen. There is some brushwood resembling the mimosa, and also the paper mulberry or cloth plant, growing at the bottoms and sides of some of the craters. In one spot on the island there are a few stumps of a large palm, but the trees no longer exist, and I doubt much if wood

to any extent ever did exist. The missionaries have, within the last three years, planted a garden, and vegetables and maize are doing well; previous to that the vegetable productions were confined to the sweet potato, the plantain, and the sugar cane.

4. Early navigators appear to have left pigs and goats, which became very numerous, but they have latterly been all killed off, and rats are the only animals left. A few sheep have now been imported, and they thrive well. The domestic fowl has long been in the island, but there is no other land bird, and of sea birds there are very few; we only saw the tern, the boat-swain, and the frigate birds. Of fish there is very little close in shore except the flying fish; the natives have, however, large stone hooks, with which they used to catch big fish far out at sea; now they have no canoes or rafts left to go out with. There is very little seaweed, but a kind of moss, which grows on the rocks just under water, is eaten by the natives. The water in the different wells on the island is brackish, but at the bottom of some of the craters fresh water is to be had in abundance. There are no reptiles, and very few insects.

5. As regards the climate, the missionaries inform me that from October to April the trade wind is constant, blowing strong for about a fortnight, when it commences and leaves off. Whilst we were there it blew hard from the 1st to the 6th November, but, as was predicted, it became lighter on the 7th, when we left. From April to October the weather is variable, westerly winds prevailing, when there is a good deal of rain. During the trades there are also occasional showers; thunder and lightning are apparently unknown; and I may mention that neither the shock of the earthquake nor the wave of the 13th August had been felt.

6. The island is so destitute of wood and water that it has little to boast of in the way of beautiful scenery; the craters, however, which are very numerous, in some measure relieve the sameness of the view. One of them on the south side, where the land is about 1,000 ft. above the sea, particularly claims notice. It sinks down to the depth of nearly 400 ft., the bottom being a perfect circle of two miles and a half in circumference, quite flat. The sides are steep and regular, except in one place, where there is a large gap just over the sea; here, standing on a ledge of rock at the edge of the crater, having on one side the sea dashing against the perpendicular cliffs, more than 1,000 ft. below, and on the other the crater, with its quiet lakes and green marshes, the view was most striking.

7. The early history of this isolated people is but little known, even to themselves. The missionaries, who are conversant with their language and live with them, have heard but the one tradition, that their ancestors came in a large boat from Rapa, an island in the far west, ages ago. They landed in

Ouinipu, a bay on the east side; their king was with them, and he made all the statues out of a quarry that was in a crater where he lived. After a time the people multiplied and spread about, and, on one night, the statues walked off to where the people were, some fell down on the way, and there they are laying still. The first part of the legend is, perhaps, as reasonable an account of how the island became peopled as any other. The appearance and habits of the natives are exactly those of the Polynesian race, and their language is so nearly the same that it may be termed a patois of the true Kanaka.

8. As regards the huge stone figures, there is a mystery about them which gives a greater interest than would otherwise be attached to such rude sculpture. Any real clue as to when they were made is altogether lost, although the natives have names for each of them that have been handed down from former ages. They are busts, varying in size from 20 to 33 ft : the features are gigantic, but still in proportion, and somewhat resemble the present race. There must be about two hundred of them in different parts of the island, but many are so defaced and worn away by the weather that it is not easy to tell what they once were. The quarry where they were cut is on the side of a crater, and there the figures are still to be seen in their unfinished state, in every stage—some with the features carved out of the solid rock, but still attached to it, others so far hewn away that a little more labor would have separated them. A number of the statues are still standing round the crater, and have a most singular and even imposing appearance. Those that stood on the platforms near the sea are now lying on the ground broken. The platforms, which were of very large blocks of stone, cut with great nicety, have also fallen into decay.

11. According to all accounts there must, a few years since, have been about 3,000 inhabitants, and it is probable the numbers varied very little. They were divided into tribes, each person having a small portion of land, the chief, however, being a larger proprietor. Periodically a king was elected by the chiefs, who, when the sea birds began to lay, assembled on a promontory on the south side of the island, and the one who found the greatest number of eggs was proclaimed King. In this choice there was something beyond a mere chance, for the cliffs were steep, and it required both skill and courage to be the most successful; many of them lost their lives in the competition. The tribes were not, as in some of the Polynesian islands, always at war, but their feuds were just sufficient to keep down the surplus population and provide the victors with an occasional feast. The ships that formerly visited the island appear to have made little impression or change in the people,

and, only a few years since, they must have been the same as they were centuries ago.

12. The sameness, however, was unexpectedly disturbed by a transaction, the details of which were kept so quiet that this is perhaps the first time they have been officially noticed. About five years ago the islanders were astonished at seeing a number of ships come into the bay, and anchor close to the land. They had colors which are described as Peruvian, and a great many men and boats. The natives, who had then many canoes, crowded round the ships, and went on board to barter. Suddenly they were all seized, tied up, and put below; a few got away in the canoes and reached the shore. The people in the ships, finding that no more came off, landed in a number of boats, and by firing their muskets and chasing the natives at last got them hemmed up where they could not well escape, and several hundreds were taken. Some slight resistance was made, and two of the Peruvians were killed with stones. The poor creatures thus kidnapped were taken off, with others that had been obtained at the Marquesas, to the Chinchas Islands, to work guano.

13. As might be expected, they soon died; indeed, so rapidly that when the Peruvian Government were obliged, under pressure from foreign countries, to take back the "engagés" they had kidnapped at the Marquesas, only a few of the natives of Easter Island remained. They were, however, sent back at the same time, most of them dying in the passage.

14. This may be termed the turning point of their history. The king and a number of the chiefs had been carried off by the Peruvians, and in a short time everything fell into anarchy and confusion; the animals were all killed off, and the people lived as they best could, each one plundering his neighbors. Even the restitution of the captives proved a great calamity, for they brought back with them smallpox, and the island was nearly depopulated. It was whilst they were in this state that the first missionary landed. He was sent from Tahiti by the Roman Catholic Bishop, and was accompanied by a lay brother and four Kanakas. At first his task was a hard one, and his life was in constant jeopardy, but possessed of a mind singularly commanding, he has managed to tame these uncivilised beings, and to obtain not only entire control over them, but completely to change their habits. So honest are they now that it is difficult to believe what one has read of their former character. They are to a certain extent industrious, and the rising generation are content with one wife, or one husband, an arrangement difficult to carry out where there are twice as many men as women.

15. Notwithstanding, however, that they have thus been brought into contact with civilisation in its least objectionable

form, the result appears to be as fatal to their existence as if they had only been visited by the trader with his spirits and gunpowder. When the missionaries first arrived on the island there were nearly 1,500 inhabitants; they are now reduced to 800, and the deaths are in proportion to the births as three to one. This may be partly owing to former misfortunes, but it is also very likely that in collecting them all in one spot, in fixing certain hours for daily mass, and in other ways entirely changing their former habits, too great a pressure has been suddenly put upon them. The island has but few resources to sustain a population, but, by a sort of instinct, the natives formerly made the most of what was there, and they lived. They have now been interfered with, and they no longer rely on themselves, whilst those they look up to are unable to assist them.

16. It is impossible to praise too highly the zeal and self-devotion of the missionaries, but it cannot be denied that those who sent them, and there and then left them to their fate, without further inquiry, incurred most serious responsibility.— I have, &c.,

(Signed) W. ASHMORE POWELL,

COMMODORE AND SENIOR OFFICER.

To the Secretary of the Admiralty, London, S.W.



Reporting Calling at Sala-y-Gomez and Easter Islands.

H.M.S. *Sappho*, at Sea, lat. 26° 01' S., long. 114° 02' W.,
20th June, 1882.

SIR—I have the honor to inform you that I touched at Easter Island in H.M. ship under my command on the passage from Coquimbo to Pitcairn Island, and as the *Sappho* is the first English man-of-war that has visited the island since the *Topaze* was there in 1868 (as far as I can discover), and as it is much changed since then, I think it right to give you a detailed account of my visit.

2. Before arriving at Easter Island I sighted Sala-y-Gomez at midnight on the 13th, and thinking it desirable to examine it by daylight to search for wreckage, &c., I lay to till the morning, when I steamed up to within half a mile of the lee side, but saw nothing except some very weather-beaten barks of timber that looked as if they had been there a long time. There was a heavy swell on, and landing did not appear to be practicable anywhere without risk. Scott Reef was showing plainly, with occasional heavy breakers on it, and is a danger for any ship passing at night, especially as Sala-y-Gomez is so low that it would not show if very dark until close in.

3. Easter Island was sighted, distant about 30 miles, at daylight on the seventeenth day from Coquimbo (June 16th), and on getting up to the east end I intended to anchor off Mount Topaze for the night, but as the south-west swell appeared to make the landing very bad, I gave up the idea, and steamed round to Cook Bay, where I anchored in the evening. In rounding Cape South-west I passed between Needle Rock and the mainland, and I may mention here that the passage, as well as the one between the two islands, is perfectly clear and free from all danger, with deep water in both. The high cliff which towers over you as you pass between makes it a very striking and picturesque sight.

4. On passing the village of Malaveri I was surprised to see the English flag hoisted on a lofty flagstaff, and shortly after anchoring I was boarded by Mr. Alexander Salmon, the agent of the "Maison Brander" of Tabiti, who now owns the greater

part of the island, and from him (during my two days' stay) I got the information I am about to detail. I may add that Mr. Salmon speaks the native language thoroughly, having learnt it as a boy from Easter Island natives employed by the "Maison Brander" at Tahiti, and therefore all the information I got about the native names and traditions may, I think, be relied on.

5. The "Maison Brander" have traded to Easter Island at intervals for some years, and about four years ago bought from the Bishop of Tahiti the property of the missionaries who were on the island, who then left for the Gambier Islands, taking with them about 300 of the natives of the island. There was also a Frenchman, named Bornier, who was murdered about two years ago by the natives for intriguing with their women. His property has also come into their hands, and they have bought more since, so that now they own the greater part of the island.

6. They have now on it about 10,000 sheep and about 400 head of cattle; and as there are two (and sometimes three) lambing seasons in the year, their flocks are increasing very rapidly. The pasture is plentiful, but Mr. Salmon says does not fatten the stock much, but wherever he has sown good grass seed a good result has been obtained. With the present number of sheep he gets about 18 tons of wool a year.

7. There are enormous numbers of poultry on the island in a semi-wild state, but all owned by natives and known by their owners; and in fact a fleet could easily be supplied with fresh provisions, with the exception of vegetables, which are scarce at short notice; but as yams and sweet potatoes, bananas, and plantains grow in abundance, they also could be got in time. Water is the only scarce article, but with that exception passing vessels calling at Easter Island could get all needful supplies of fresh provisions.

8. There are now only about 150 natives on the island, and they are not increasing, as the death rate balances the birth rate, if it does not exceed it. About eight years ago the "Maison Brander" shipped about 500 to Tahiti to work on their plantations there, which, with the 300 taken with them by the missionaries, accounts for the difference of population since Commodore Powell's visit. I looked in vain for any traces of the personal beauty of the race described by him; if it ever existed the fortunate possessors must have been amongst those who emigrated.

9. There is also no trace left of the missionaries' work. The remaining natives have no religion at all, are expert thieves, and very revengeful, and never forget or forgive a blow, although in general good-tempered. They have no religious ceremonies or observances; a marriage is arranged by buying a

wife for a patch of potatoes, and it only holds good so long as is will suit either, or both, to remain faithful to the other.

10. They are divided into several small clans, amongst which strength or personal courage is the only claim to superiority, and their chief quarrels are over the efforts of each clan to secure the first eggs of the "wide-awake" every year from Needle Rock, to which they attach a superstitious value. The man who gets the first gives it to some one of his clan, and he himself has to become a hermit for a year, living by himself, and not washing or cutting his hair or nails during that time. As there is a heavy surf at the bottom of the cliffs opposite the Needle Rock, several lives are lost nearly every year while they are seeking for the eggs.

11. Mr. Salmon says that, after long talks with the natives on the subject, they all say they originally landed on the north side of the island, at Anakena; and came from the *East* in two canoes, provisioned with yams, taro, and sweet potatoes. The King (by name HOROMETVA, or "The prolific father") was in one canoe, and the Queen in the other, and on making the land they separated, passing round in opposite directions and meeting again at Anakena, where they landed, and then settled on Mount Topaze, of which the native name is Hotv-iti, so called after the youngest son of the King, and not as given on the chart. They there built the stone houses the remains of which still exist, and made the statues with which the hill is covered; but the first statue was not made till some fifty years after they landed. This version of their traditions appears to be more likely than that given in pages 483-4-5 of the "South Pacific Directory." Also, the original native name for the island was Te-Pilo-Fenva (the middle land of the sea; or, the land in the middle of the sea) not Rapa-nui.

12. The anchorage in Cook Bay appears to be very accurately laid down in the chart, except that Point Roa runs out about a cable further than given there, so that a ship coming in with the mission bearing east-south-east will be in 16 fathoms when Point Roa and the south extremes of the island are in line.

13. The landing at Cook Bay is not very good, it being very shallow in shore, with rocky bottom, necessitating wading or being carried ashore; but at Hanga Piko there is a very good landing-place, only the channel into it is narrow, and, with any swell on, the breakers on each side are rather alarming. However, it never breaks across the channel except in a gale, and I had a rock blown up during our stay which will improve the passage.

14. I was immensely struck with the fertility of the soil, if it was only cultivated I believe it would produce magnificent crops, and it seemed to me to be specially adapted for the culture of vines, of which as yet there are none on the island.

Mr. Salmon is quite alone amongst the natives, and has no time for anything but the care of his flocks and herds.

15. The extinct volcano of Te Rana Kao, on the south-west corner of the island, is well worthy of the praises bestowed on it by Commodore Powell—it alone will repay anyone for a visit to the island. The bottom is not level, as described in the sailing directions by Findlong; on the contrary, there is no bottom at 50 fathoms in the centre of the crater, but there is a carpet of decayed vegetation spread over the water on which one can cross from side to side. There are wild duck to be shot amongst the pools, and wild boar round the edges of the water, as also in the crater of Mount Topaze.

16. Mr. Salmon informed me that during the last months large quantities of sawn planks have been washed up on the north and south-east coasts of the island, which, he thinks, must be from the wreck of a timber-laden ship. A spar was also found, but the natives had cut it up before he heard of it.

17. In conclusion, I beg to suggest for your consideration the advisability, seeing that the island is almost entirely owned by an English subject, of her Majesty's Government now extending some sort of protectorate over it.—I have, &c.,

(Signed) BOUVERIE F. CLARK,

COMMANDER.

To Rear-Admiral Algernon Lyons, Commander-in-Chief.



**Royal Geographical Society
of Australasia.**

SOUTH AUSTRALIAN BRANCH.

**ABSTRACT OF JOURNAL OF EXPLORATIONS IN
WESTERN AUSTRALIA, 1896-7.**

UNDER COMMAND OF L. A. WELLS.

**DESPATCHED BY F. A. CALVERT, UNDER THE AUSPICES OF THE
ROYAL GEOGRAPHICAL SOCIETY OF AUSTRALASIA, SOUTH
AUSTRALIAN BRANCH.**

Abstract of Journal of Explorations in Western Australia, 1896-7.

UNDER COMMAND OF L. H. WELLS.

Mr. Wells has kindly placed at the disposal of this Society the following "Abstract of his Journal of Explorations in North-West Australia, 1896-7":—

Adelaide, August 31st, 1899.

COUNTRY TRAVERSED, &c.—Leaving Adelaide per steamer on Sunday, 24th May, 1896, we proceeded to Geraldton (Champion Bay), thence by rail to Mullewa, where I purchased 20 splendid camels, and made all necessary arrangements for a start, which took place on the 13th June. We travelled by road to Cue, and after making final arrangements, proceeded to Lake Way, formerly discovered by me whilst a member of the Elder Expedition in 1892. Commencing my journey from this spot on 16th July, we travelled in a more or less north-easterly direction for 140 miles to Lake Augusta (discovered by Sir John Forrest in 1874), which at the time of my visit was perfectly dry, and resembled rather a miserable shallow claypan, about a mile in diameter, than a lake.

After leaving Lake Way we passed over, generally, from fair to inferior pasture land of good red loam, chiefly clad with mulga (acacia), and ridges and ranges of granulite, &c., with patches of grass and herbage throughout, and also a small extent of desert sand ridges studded with bloodwoods and desert gum trees (*eucalypti eudesmioides*). At lat. 27 deg. 20 min. south, long. 121 deg. 32 min. east, we discovered a splendid lagoon of perfectly fresh water at the mouth of some watercourses and between some low mulga-clothed ridges, where there is a pretty little glen and some very fine gum trees (*E. redunca*). There are some large slabs of travertine limestone in the bed of the lagoon, and clumps of ti-tree fringe its banks. I named this important spot "Lindsay Gordon Lagoon," after the well-known poet, whose verses are so much admired by Australians. I am of the opinion that permanent water will always be found here at very shallow depth should the lagoon become dry. Some cranes and black cormorants

flew from the water as we approached. When full this lagoon empties into another about two miles to the westward, which has the appearance of being brackish, and was dry at date of our visit. In latitude 26 deg. 5 min. south we crossed a conspicuous range of sandstone and quartzites bearing north-east and south-west, which extended as far as could be seen with the naked eye. It is undoubtedly a portion of the watershed of the Murchison. Its summit is about 1,850 ft. above sea level. I have named it "Princess Range," in honor of her Royal Highness the Princess of Wales.

Immediately beyond this range, and extending to Lake Augusta and Mount Moore, on Forrest's route, we passed over some excellent pastoral country with numerous creeks and watercourses, fringed with large gum trees (*E. redunca*), in which are some splendid waterholes up to 15 ft. in depth. Some of these holes are from a quarter of a mile to half a mile in length when full, and most of them are in a good retentive clay. Numbers of wildfowl (chiefly ducks) were seen on these waters, and the creek valleys were well grassed with patches of salt bush, Mitchell grass, and herbage in places, the higher country intervening being of quartzites and slate, clothed with mulga. These creeks are not many miles in length, chiefly trending in a southerly direction, and emptying into large salt lakes, which I have named after the Hon. D. Carnegie, who was conducting an expedition to the eastward of our route, and Mr. W. Rudall, who so pluckily undertook the task of search work under most unfavorable conditions in connection with the loss of my cousin, Charles F. Wells, and Mr. G. L. Jones. These lakes extend several miles in length and width, and were almost dry at date of inspection. Sand ridges here border the shores, where we noted excellent herbage and grass. The saline surface of these lakes presents an almost dazzling whiteness, and registers about 1,400 ft. above sea level. High tablelands of sandstone are visible to the south, and no doubt there are other similar lakes extending towards those discovered by me in 1892. We noted tracks of several horses about some of the creeks, showing that prospectors had found their way so far from the Murchison goldfields.

My first depot was formed on one of the most important of these waters, which I have named "Harry Johnston Water," after the Surveyor-General of Western Australia. It is an exceedingly beautiful waterhole, about 15 ft. deep and nearly half a mile in length when full. We found 10 ft. of water here, and it had every appearance of holding well and lasting for a considerable period (quite nine months, if not longer.) On the banks, and at the ends of this hole, I noted long dry grass—clear evidence that the creek had not been flowing for some months—and during our stay there of six weeks the water-

level only decreased about one foot. As the camels, on arrival, were low in condition, I decided to spell the greater number of them in this locality whilst I proceeded on a flying trip to examine and map the country to the northward, and enter as far as possible into the heart of the Great Sandy Desert.

Leaving my cousin (C. F. Wells) in charge of the main party and camels, with instructions to select the most suitable spot to spell on, I started on August 10th, prepared for a five hundred miles trip should we not find any water, and accompanied by Mr. G. L. Jones (mineralogist), and Bejah, with seven camels, 150 gallons of water, and necessary outfit. We passed through the Timperley Range (Forrest's route, 1874), which is of sandstone capped with quartzite, crossing a large extent of fair pasture land, clothed with mulga and grass, and finally reaching Mount Bates, where we found the waterhole described by Sir John Forrest during his memorable trip (1874), and also his tree marked F_{52} , which was in good preservation. There was, however, but little water in the waterhole. At this spot we surprised some natives, who fled into the mulga, but we afterwards established friendly relations with them. Leaving Mount Bates, and still pursuing a north-easterly course, we immediately entered desert country of miserable, continuous sand ridges, with a uniform bearing of west-north-west and east-south-east. These, together with the flats or troughs between, were clad with a dense growth of porcupine grass (*triodia irritans*), desert gums (*E. eudesmioides*), and inferior acacias; and the monotony of the country was only broken at intervals by low, mulga-clad, clay-rock ridges, of a most uninviting appearance. A few miles beyond Mount Bates we passed along the shores of another large salt lake, which I have named after Mr. N. Buchanan.* At about a hundred miles from Mount Bates we crossed Mr. Ernest Giles' route of 1876 at a spot called "Buzzoe's Grave," where that intrepid and persevering explorer discovered a little soakage water. There was none when we reached it, however; in fact, from his description of the place, I hardly anticipated finding any. Continuing our journey north and north north-easterly from this point, our anxiety regarding water now began. We travelled over a most wretched and disheartening country, almost destitute of camel-feed, the little we found often having to be gathered and carried to the poor brutes from the tops of the sand ridges. The country is undulating, with the tops of clay-rock ridges showing through the sand, which holds its own in ridges of unknown length, all trending in the one direction (west 20 deg. north, and east 20 deg. south), very steep

* A worthy pioneer and explorer, of over seventy years of age, who lent valuable assistance in search work from the Fitzroy River during our most trying period.

in places, and averaging from ten chains to half a mile apart. We were repeatedly disappointed in searching for water in the vicinity of the mulga-clad and sombre-looking ridges of sandstone and clay-rock, the very sight of which made one thirsty. There are here only very small watercourses, which empty themselves on the sandy flats.

After a fortnight's travelling through this wilderness I found our position had become most serious. During the last two days we had not found a bite for the camels, and indeed we saw little in the way of vegetation save a vast ocean of porcupine, the dazzling whiteness of the dead seed stalks of which was almost blinding. We had reached the very heart of the Great Sandy Desert without finding water, and had travelled over 250 miles from depot, and over 200 miles from the last water, near Mount Bates. Even of this supply I felt doubtful, as there was but little when we passed it. We had pushed on, doing very long stages, and for some days longer than I deemed prudent, in the hope of finding water. We still had 120 gallons in the kegs, as we had been economical in the use of it; but owing to the increasing warmth, lack of feed, and the exhaustion entailed by the crossing of hundreds of steep sand ridges, I found the camels were unable to proceed without a drink, so, being thoroughly disappointed, I found we must give them half our stock, thereby lightening their loads. I then decided to attempt a return to Mount Bates, and altered our course accordingly. Keeping to the westward of our outgoing pad, in the hope of finding water, we got off camp on the morning of 25th August. After travelling five miles, whilst walking in advance of the camels, our usual practice for the first three hours of each day, I was attracted by the well-known whirr of the crested bronze-wing pigeon. It struck me as significant that the bird seemed so intent on reaching a destination at this early hour of the morning, and I determined to follow in the same direction for a short distance at least, in the hope of being led to water, and although I had before frequently followed pigeons and finches for upwards of ten miles without success, in this instance I was not disappointed. By this means we had the gratification of finding a splendid native well of a permanent character in sand and soft sandstone, at shallow depth, with travertine limestone and a species of tall ti-tree in its vicinity. Although slightly brackish, the water was very good for domestic use, and was a most fortunate discovery for us. I need hardly mention our feelings of gratitude on that occasion. Our anxiety was at an end for a time, and I felt we had conquered the desert. We also had the rare pleasure of a day's rest and a delightful wash—the first of any description since leaving Mount Bates. We were all suffering from weak eyes. I could scarcely use mine for taking observations. I called this place "Midway Well"

(lat. 23 deg. 23 min. south, long. 123 deg. 59 min. east). The discovery of this water enabled me to subject this country to a better examination, so after our day's rest we altered our course south-westerly, encountering some exceptionally high and steep drift sand ridges, fully 100 ft. high.

At 20 miles from "Midway Well" we came upon some small, marshy flats, around which were many quondong trees, of two varieties, bearing, of its kind, the largest and most luxuriant fruit I have ever seen. We noted in this vicinity travertine limestone in large quantities; also mallee (eucalyptus). Noticing some cockatoos here, we discovered, through their agency, another native well on the edge of a marshy flat, from which it had been almost filled with debris. The water was near the surface, but so salt and bitter that we were unable to make any use of it. Returning at a later period to this spot, which I have named "Surprise Well," we dug the well out, and were gratified to discover a splendid supply of perfectly fresh water, which rose from the bottom of the hole, through soft sandstone, in a crystal-clear stream, with a very little of the finest red driftsand. The water rose 4 ft. in the hole, and afterwards, when mixed with the saline formation above the sandstone, became slightly brackish. It is a splendid water, and no doubt exists in my mind as to its permanency. Like "Midway Well," this watering-place has evidently not been in use by the natives for several years.

We resumed our journey, passing over countless and seemingly endless ridges of sand for a distance of 60 miles, when we discovered several prominent ranges and headlands of sandstone, capped with quartzite and ironstone. The largest and most prominent of these I called "Sir Fowell Headland," in honor of our late Governor, Sir Thomas Fowell Buxton. Here the monotony of the sand ridges was broken for a few miles by a large marshy flat or valley, which lay at the foot of several of these headlands. It was sparsely clad with saltbush, and its lowest part was a small saltpan, which, in the distance, deceived us by its resemblance to a lagoon of water. Leaving this valley, we once more pursued our course over most trying and wretched sand ridges, so steep and high as to be almost insurmountable. They finally knocked our camels up completely. These ridges extended right up to the foot of another prominent range, which is 500 ft. above the saltpan just mentioned, and is of sandstone, with cliffs and headlands conspicuous from its northern side, but almost invisible from the south, where the sand ridges reach to its summit. It is partly mulga-clothed. I have named it "Calvert Range," after the promoter of the Expedition, and have given the name of Mr. J. G. Russell (Commissioner of Taxes and Insolvency for this colony) to a very bold and conspicuous headland. On the northern side of

this range we discovered some caves, in one of which there was a little soakage water dripping through the enormous sandstone slabs of its roof, and lodging on a similar rock, where a shallow basin has been worn. Growing in the crevices between these giant rocks, and also at the entrance to the cave, are several small gum trees (*E. redunca*), the first we had seen since leaving the depot. In this locality we found the skeleton of a human being, probably that of a native; but if so it is the first instance in which I have known one left without some rude attempt at burial.

Continuing our south-westerly course, we travelled to Mr. Ernest Giles' route, lat. 24 deg. 10 min. south, long. 122 deg. 23 min. east, through a most inhospitable region of sand ridges; then bearing south, we passed several unimportant mulga-clad ridges, with immense quantities of limestone in the flats and troughs between them, finally reaching lat. 25 deg. south, where we practically cleared the desert. Here we found a range of sandstone and quartzite extending east and west, showing several prominent hills and a shallow watercourse, fringed with bloodwoods (*eucalyptus*). This tortuous channel winds in an easterly direction, and probably empties itself into Lake Buchanan. I have named the range after Lord Brassey, Governor of Victoria, and the watercourse "Sunbeam Creek." Continuing our journey now over undulating and hilly country, with bloodwood watercourses, in which kangaroo grass grew luxuriantly, we crossed Sir John Forrest's route at lat. 25 deg. 25 min. south, and near Parker Range. Shortly after we passed over another prominent range, which I have named after Sir James Le Steere, of Perth. In this range, particularly in a valley on its southern side, we noted quartz, ironstone, and slate, which may be worthy of the attention of prospectors. Striking the head of one of the numerous gum creeks which empty into Lakes Carnegie and Rudall, we followed it down, and found we had come upon the identical creek upon which my cousin had formed his Spelling Depot, 10 miles west of "Harry Johnston Water." Our comrades were delighted to see us again after our 30 days' absence. During this period we had travelled 530 miles, half of which distance we had walked. All the camels in my cousin's care were in excellent condition. the contrast between them and the weary brutes with which we had just returned being very noticeable. We rested here but one week, then, as the cool season was already far advanced, I decided to push on at once, and, with the knowledge I had gained, make for "Midway Well" with the whole party and impedimenta, rather than risk wasting more time in further examination from that depot. On the 15th September, therefore, we left "Harry Johnston Water" and travelled by very early morning starts (4 a.m.) camping at noon, so that the

camels should not suffer from the heat of the then fast-approaching summer. By this means I found that two hours in the early morning saved three hours of trying work for the camels during the heat of the afternoon. They were, therefore, never on any consideration left loose at night, lest they should ramble away over the sand ridges, thereby doing themselves injury and causing loss of time. With the aid of a little drink from the kegs the camels got through the whole of the 200 miles stage of waterless desert to "Midway Well," where we found the water, as when I left it, a really good and permanent supply. Though the 20 camels gorged themselves daily, it seemed to make no difference to the supply, which always rose again to the same level.

Having arranged that my cousin (Mr. C. F. Wells) should start on a flying trip to map the country to the north-west, accompanied by Mr. G. L. Jones, to make a geological examination, I considered that a week's rest, previous to starting, would be well for them and the camels. During this period I, myself, with Bejah, two camels, and 10 gallons of water, left "Midway Well" with the intention of examining the country to the northward in search of water and camel-feed, prepared, if necessary, to proceed as far as 80 miles in that direction. We travelled generally north, but deviated occasionally in search of water. We found the sand ridges very numerous and trying, and during the first two days we saw little or no camel-feed. I ascended to the tops of several high sand ridges, but the view in all directions was most disheartening; nothing was visible but a sea of glaring red sand ridges. On the third day we found some old tracks of natives; these we ran with difficulty, losing them at each sand ridge and picking them up again in the flats. Eventually we were rewarded for our perseverance by the discovery of a water, which afterwards proved to be a permanent supply, of perfectly fresh quality, in soft sandstone. It was a small native well in a miniature bare patch, amongst ti-tree and between sand ridges. The high ground a few miles to the north-east and south-west shows sandstone outcrops, but about the well no rock is visible, even from a distance of a few yards. The latitude of this place I make 22 deg. 51 min. south, long. 128 deg. 52 min. east. This well, through the lamentable misfortune which subsequently befel us, gained the name of "Separation Well." It is situated about forty miles due north of "Midway Well." As I felt hopeful of the permanency of this water (though unable then to test it without perhaps wasting the supply) I decided to return to the main party and bring all through to it, as I considered my cousin should start on his purposed trip with fresh water, instead of the brackish quality from "Midway Well," which Bejah and myself had not found too palatable when on a strict allowance

during the very hot days. Reaching the main party, after a five days' absence, we filled all the kegs with water, and, observing the early starting practice, pushed through the 40 miles, despite the number of sand ridges and heavy loads, by 1 p.m. on the second day. We enlarged the well, which, when discovered, would not permit of a bucket being lowered into it, and we found we had another splendid supply, equal to rain-water, at a shallow depth, which always attained the same level after being forked. The camels drank very freely of it, and numbers of shell parrots and pigeons came to water there. Up to that period of the year, although some of the days had been exceptionally hot, we had always experienced cool changes in the shape of easterly breezes. We found that a patch of wattle bush (acacia) a few miles in extent lay around this water, and a small area of roly-poly immediately around the well; the latter was probably caused by the camping of natives. Such welcome spots as these, truly oases in the desert, are the only places of rest for man and beast. After resting here two days we made preparations for continuing our journey. It was arranged that my cousin and Mr. Jones, with three camels, 60 gallons of water, and provisions for a month, &c, should proceed in a west-north-westerly direction for 80 or 100 miles, should they think fit to go so far. By travelling in this direction they would be following the trend of the sand ridges, thus avoiding the labor of crossing them. They were then to proceed in a north-easterly direction to cut my line of march about thirty or forty miles southerly from the fixed position of Joanna Spring, as shown by Major Warburton in 1873. Meanwhile I purposed travelling due north with the rest of the party, 17 camels, and the whole of the impedimenta, in search of Joanna Spring or Warburton's Camp 93, which he described as a permanent water. My cousin was to proceed without any hard or fast instructions, and to use his own discretion in case of emergency. If arriving at my line of march without cutting our tracks, he was to continue on in search of Joanna Spring or other of the waters described by Colonel Warburton. We arranged to send signal smokes after a ten days' separation, and in the event of finding water at or in the vicinity of Joanna Spring, they were to signal and await our arrival, but only so long as their stores would permit. Failing our arrival they were to continue on to the Fitzroy River. The only advice I gave my cousin, who was a bushman of long experience, was on no consideration to leave his camels loose at night, to make very early starts, to avoid travelling during the greatest heat of the day, and to observe the strictest economy with the water supply in the kegs. He took a West Australian geological map, showing the head of the Oakover, Nullagine township, and the Fitzroy River; also, Colonel Warburton's map, and necessary

instruments, journals, &c. In the event of my finding Joanna Spring or other waters shown by Warburton, I arranged to await their arrival or ascertain by examination of the country whether they had gone on in advance of us to the Fitzroy.

After spending a last jovial evening together, each party left "Separation Well" simultaneously on the morning of the 11th of October. Our troubles began almost from the day we parted. The heat increased daily, and continued without break until we reached the Fitzroy River. During this period of more than 300 miles of travel we passed over the worst class of country in Australia. The terrible sand ridges, always almost at right angles to our course, held their own throughout, and in places were so numerous, high, and steep that I almost despaired of getting over them. With the exception of desert gums (*E. eudesmioides*), a very coarse species of acacia, clumps of tall ti-tree, and porcupine, which predominate everywhere, there was little vegetation. We found but three patches of what might be termed camel-feed during the whole of this journey. With occasional outcroppings of sandstone, viz.: tops of almost buried hills and ranges, we had the same class of country throughout. As we proceeded, the desert gums gave place to Leichardt trees, the first of which we noted about latitude 21 deg. south. Between latitudes 21 deg. and 21 deg. 30 min. south we crossed over about 30 miles of undulating, sandstone gravel country, with very few sand ridges, and I note Colonel Warburton crossed this same belt of country between latitudes 20 deg. and 21 deg. south, and longitudes 122 deg. and 123 deg. east; as also did the Hon. D. Carnegie (on his route to the eastward), where it was upwards of 100 miles in width. Perhaps at some remote period a great transcontinental railway line may be seen passing through this belt of country and connecting the eastern colonies with the Indian Ocean, thereby affording a more direct communication with England.

After leaving "Separation Well" Bejah and myself walked many miles in search of water, and went times innumerable to the tops of the highest points visible from camp, only to obtain the same monotonous and disheartening view of defiant sand ridges extending to the horizon. On one occasion, after halting for the day, I started on foot to follow an emu track (the only one we saw in the desert); it took me in a direct line for seven miles, when, thoroughly fatigued, I gave up the search in despair and retraced my steps to camp. When about 100 miles from "Separation Well," after travelling all night and spending the following morning in digging out a native well, which proved dry, Bejah accompanied me on foot in the direction of some native smokes, in the hope of finding tracks or running them to water. We started at noon in a terrific heat, and did not return to camp until 1 a.m. the following morning, having

walked 20 miles. Bejah collapsed about seven miles out, and in waiting for him and urging him to follow me I became exhausted myself. The result of this walk was the discovery of a well in driftsand, which was occupied by natives, who fled at sight of us. We found it but a soakage, about 15 ft. deep, and most difficult to work, and after a loss of four days, spent in tracking natives and working the well, during which time my camels were practically starving, I had the mortification of finding the latter dry after we had obtained but two buckets of water for each camel. I called this place "Sahara Well." Fifty miles further north we had a similar experience with another well, which also cost me a loss of four days, with starvation for the camels; but we were able to obtain three buckets of water apiece for the famished brutes, and left the well when it was making about two buckets per hour. This place, which I named "Adverse Well," is in a difficult spot to find, as there are no landmarks by which to locate it. We discovered it by tracking natives during the day to their camp, where we found a lame man and some children. As it was night when I brought my party to the spot I was unable to strike nearer than 15 chains to the westward, where we halted, waiting for morning, and seeing no signs of native fires we concluded that they had fled, as at other times. We turned in about 9 p.m., and feeling very fatigued, I soon fell asleep. However, Mr. Keartland woke me about an hour later, saying he could hear natives talking. About 10 p.m. 11 men came to the top of the nearest sand ridge and called out the word "Yarra." I replied, repeating their call, but unaware of its meaning, when they called again, twice. Believing they meant to be friendly I went, by the light of a waning moon, to meet them, and was shortly afterwards joined by Mr. Keartland, Trainor, and Bejah. They were anything but prepossessing to look at. Each man carried two small waddies, and the elder in appearance carried a shield; his forehead was painted white, and in his hair he wore a plume of white feathers; he appeared to be the chief spokesman. Earlier in the day I had learned from the old man at the well that the word "Napa" meant "water," so with this knowledge I endeavored to ascertain from them information about waters in our front. Two of the young men commenced pointing to the north-west and north-east, but the elder, or chief, spoke severely to them, completely silencing them and checking their actions. After presenting them with some shirts, handkerchiefs, &c., I signified to the chief that we wished to return to camp and sleep, whereupon, throwing his shield on the sand, he gave a signal, to which the other natives responded by following suit with their waddies. They then all walked off in Indian file towards the well. The following morning, by a bush near the well, we found upwards

of 30 spears, which were not there when the water was discovered the day previously. The lame man, too, and all the women and children, had disappeared. Undoubtedly these warriors of the desert were laying in ambush to protect their water, and had we gone direct to the spot we should have been greeted with a shower of spears. Coming to us in the morning they invited me to take water from the well, but during our labors there they mysteriously disappeared for the day, and returning at night by stealth, took their spears, and we saw no more of them. The waddies and shield they left on the sand ridge where they had thrown them. When we found this well my camels were in such a deplorable state, chiefly owing to the frightful heat we had experienced, that two of them were unable to swallow the water, although they eagerly put their noses into it when it was offered them.

As it was necessary to reduce our loading, we left at camp, covered with tarpaulin, a stack of the articles we could best dispense with, and resumed our journey northward. We had travelled but five miles when one of the best camels fell dead from urinic poisoning or inflammation. During the whole of our trip we met with no sand ridges or hills of so bad a character as those encountered in the next 20 miles. They were upwards of 100 ft. high, and crowned with drift, the flats between being exceptionally narrow. It took two whole nights' travelling to cover them. In the heart of this dreadful region we abandoned all but absolute necessities, and pushed on in the hope of finding Warburton's Camp 93 and rescuing our treasures. Arriving at that latitude at daylight, about 9 a.m. on the morning of the 29th of October, I saw a smoke rising to the eastward, and thinking it might be a signal from our friends, I returned to camp and arranged for Mr. Keartland to start a return smoke; whilst I started on foot at 10 a.m. in the direction of the smoke, carrying nothing but my compass and about half a pint of cold tea in a small glass bottle. After walking about due east for two miles I noted numbers of other smokes in the same vicinity, and concluded they must be from native fires. I walked in this direction until 2 p.m., and, allowing for the sandy nature of the ground, I believe I reached a distance of quite 12 miles from camp. The smokes were still some miles in advance, the heat was almost unbearable at this time, and I felt much in need of water. Had I gone on and found tracks of natives they most probably would have been some miles out from the water, and as I felt that my strength was not sufficient to run the tracks up and down the sand ridges, I decided to retrace my steps. Soon I felt a ringing sensation in my ears, and became partly stupid, eventually reaching camp at 7 p.m. I believe I walked quite 24 miles in the nine hours. At about seven miles out from the camp I was

surprised to see other foot-tracks, and learnt on my return that poor Bejah, who was feeling ill when I left in the morning, had followed me up for that distance and had returned before me, very unwell. Owing to our fatigue we were unable to make our usual 7 p.m. start, and were compelled to remain the whole of the following day at this spot, where our second camel died, after first walking round and smelling the water-kegs. Thinking over our very critical position, and knowing that the camels were only capable of working by night, I concluded that if we went in the direction of the smoke seen we should not be able to see the tracks of the natives when crossed. Moreover, even if any of us found them by day and ran them to water they might prove "Will o' the wisps," as did the two previous wells, leading us on to certain destruction. For every good or permanent water there are a hundred of these soakages of small supply, and the natives only frequent the best waters when the others are dry. This is no doubt owing to the scarcity of game around the permanent supplies that are left in reserve. On the other hand, owing to the weak state of the camels and our limited supply of water in the kegs, I felt very doubtful whether we had strength enough left to push on to the Fitzroy River, over the 140 miles of such unpromising country as that presented to our view. Being undecided, for my own part, which course to pursue, I put the matter before Mr. Kcartland and Trainor and left them to decide. They were both in favor of attempting to reach the Fitzroy by pushing on by night. Leaving the latitude of Joanna Spring on the evening of October 31st, we travelled nightly, and did our best to avoid the merciless sun by day. Bejah and myself had become so weak that we could not bear to wear even a shirt whilst travelling, for fear of falling asleep. For the first half of the distance the sand ridges continued very bad, and being at a disadvantage through travelling in the dark, we could not see the best places for crossing them. The last 60 miles of country improved, however, the flats being much wider, and the ridges lower, but they extended to within 20 miles of the river. We lost five camels before reaching the Fitzroy on the morning of the 6th of November, with but two gallons of water remaining in the kegs. Another camel was too far gone to recover, and died after our arrival.

I thought the Fitzroy River, on the day we reached it, the most welcome sight I had ever beheld. As it lay in the midst of grassy plains, over which hundreds of kangaroos come to water, its shady banks affording a refuge from the sun, and its waters teeming with wildfowl and fish, it formed a contrast indeed to the 500 miles of desert we had just come through. Up to this period the total distance travelled by our noble surviving camels, from 13th June to 6th November, was 1,856

miles, and of this 1,212 miles was through desert country. On an average my party also did over one-third of the distance on foot. In addition, Bejah and myself walked in search of water 176 miles, 120 miles of which was over desert sand ridges, 87 miles being done in the month of October. The longest stage without water was 236 miles, and the last stage, when the camels were weak and in want of it at starting, was 170 miles. On arrival at the Fitzroy our only anxiety was with regard to the whereabouts of our comrades, though we still hoped they had reached the river in advance of us. Their lamentable fate is now too well known to need recording here.

SEARCH EXPEDITIONS.

The expeditions in search of Messrs C. F. Wells and G. L. Jones were five in number, but the first of these, I knew, would be of little avail, owing to the weak state of the camels.

FIRST EXPEDITION—Leaving "Quanbun" Station, Fitzroy River, on the 15th November, we proceeded down the channel, and thence along our incoming pad for about 30 miles, but after getting a few miles only into the desert I found the camels could do nothing in the sandhills while travelling during the excessive heat of day and carrying loads of water.

SECOND EXPEDITION.—Returning to the Fitzroy, I arranged the Second Expedition, consisting of myself, Trooper Pilmer, of the Fitzroy Native Police, and a native boy, four horses, and light equipment. We left "Noonkanbah" Station on the 23rd November. On the edge of the desert we tracked some natives, securing a gin and her child, but they were unacquainted with the country to the south. After attaining a distance of about 45 miles out from the river the horses collapsed, the water difficulty and excessive heat proving too much for them in the loose sandy country.

THIRD EXPEDITION.—On this I was joined by Mr. N. Buchanan, a pioneer bushman, his native boy "George," and Bejah. We had altogether eight camels, four of which were Buchanan's, and in good order. We left the Fitzroy Telegraph Station on 4th December, and were successful in attaining a distance of 90 miles out from the river. We were fortunate in getting two natives in the desert, one of whom we chained up so that he should not escape before leading us to water. He took us to several native wells, of which at least two, I believe, are permanent water, viz., "Ngowallara"; and "Kullga-ngunn-ngunn." Either of these wells could be passed close by without observation; the latter is a most remarkable spot. To form the wells two enormous circular holes, about 30 ft. in diameter at top and 10 ft. deep, have been scraped out in driftsand. Some

tall, broad-leaved wattle trees (acacia) were growing in the bottom and on the banks of one of these holes, and rushes at the bottom of the other, the water being then a few inches below. Travertine limestone is noticeable in the flats, particularly to the northward of this water, and corkbark trees are in the vicinity of each. We lost two camels on this expedition. Three of the number were poisoned at "Kullga-ngunn-ngunn," but one recovered, and with difficulty I saved my riding camel, which was thoroughly exhausted. In addition, we almost came to grief ourselves through depending on the native boy whom we had on the chain. We took him beyond the boundaries of his country, disbelieving his statement that he knew no further to the south, and in the hope that he would take us to other waters. We were, however, fortunate in getting relief from a small thundercloud. This was a most trying trip, owing to the terrific heat and the exhausted state of our camels. We returned to the Fitzroy Telegraph-Station in a crippled condition on 11th January.

FOURTH EXPEDITION.—This took place immediately after the wet season, when we experienced a rainfall of 20 in. at the Fitzroy Telegraph-Station. Accompanied by Mr. Keartland, Trainor, Bejah, two native boys, "Sandy" and "Dick," and 10 camels (all them in good order), I started on the 17th March, after a delay of four weeks, caused by advice from Adelaide, when it was supposed that Mr. Rudall had discovered our comrades. We first proceeded down the river to Gregory's Station to investigate various rumors to the effect that white men had been heard of in the desert. These proving without foundation, we then travelled up to "Nerima" Creek, and finally into the desert, where, through the aid of a river boy, we secured the services of two natives (one of whom had previously run away from Mr. Buchanan and myself). By bribes and promises not to harm any natives, I induced them to accompany us beyond their boundary, with the view of securing the services of a native from the tribe ("Kammarra") frequenting the Joanna Spring country. By this means we found Joanna Spring, or Major Warburton's Camp 93, which is 15 miles easterly from the position shown on the map of his exploration. Major Warburton, travelling from east to west, had much difficulty in determining his longitude, and in his remarks with reference to this water and the head of the Oakover he states that the longitude is doubtful. This water is situated on the southern side of a low valley of flats of samphire and ti-tree, called "Kalunnga-long," and the spring itself is called "Biggarong," whilst another water, half a mile to the eastward, is called "Griing." The latter is so hidden under a slab of limestone that it would pass unnoticed unless one stumbled over the spot. The soil in this valley is dark, and loose in

places, and at "Griing" some soft grass on spongy soil is growing. Near "Biggarong" is a miniature saltpan, around which is samphire. This is a magnificent water, in a hollow in the ground, with shelving limestone and sandy sides, and a pool in the centre, to which, when cleaned out, the camels could get down and drink at their leisure without lowering the supply. Through the aid of the natives from the Northern tribe we managed to get into communication with some "Kammarra" natives, two of whom appeared most willing to accompany us. They promised to conduct us to our friends, whom, they stated, were lying dead to the westward. They said the sun ("Para") had killed them. The two boys from the Northern tribe were most anxious to return to their own country, and as they had proved faithful to me I gave them a tomahawk and a knife, with permission to do so. At the same time I arranged with two of the "Kammarra" tribe to accompany us. The following morning I found every native had cleared out. I then regretted not having chained one of the tribe, in spite of my promise to the contrary, for without a guide in such country one is almost powerless. I could only assign two reasons for their disappearance—either they had done some mischief, or else they were scared when Mr. Keartland shot some pigeons which came to water the evening before. I noticed that they seemed startled and alarmed at the gunshots. Left thus to my own resources, I determined to go westerly, in the hope of finding natives' or other tracks which would lead us to the spot, for no doubt existed in my mind that the natives were correct in their oft-repeated statements concerning the dead bodies. Travelling nearly due west, on the second day out from Joanna Spring we crossed my route of 30th October by some miles, without finding the tracks, then, seeing a smoke to the south-east, I altered our course in that direction. Picking up the fresh track of a native, we ran it for some time, and then camped. One of my boys going on ahead to reconnoitre, returned and said he had seen two blackfellows, and, he thought, some gins and children, about a mile in advance. Fearing they would hear the camel-bells, or otherwise discover our presence before morning, and believing, from the boy's statement, that we should have no difficulty in taking one of the men, I started off with Bejah and the two boys, leaving Mr. Keartland and Trainor in camp. "Sandy" conducting us, we crawled to the top of a sand ridge, where the first thing that met my view was a plan lying close to me; it was one which I had given my cousin Charles when we parted. I could see but two blackfellows, about 15 chains distant, in the flat beyond, and the heads of some others who were sitting under a tree; these I believed to be the women and children mentioned by "Sandy." Making both "Sandy" and "Dick" strip naked and stand on the sand ridge in view,

I called out, and soon saw that the natives were puzzled by the appearance of our boys. Then Bejah and myself stepped from cover, and immediately seven natives, armed to the teeth, ran out to an opening and challenged us, calling "Yarra!" "Yarra!" which means "Come." They appeared most furious, whilst several women and children fled, panic-stricken. "Sandy" and "Dick" became afraid, and told me to look out, saying the natives were "sulky," whilst Bejah suggested returning to camp for the assistance of Kearthland and Trainor. As we advanced, the warriors, with their spears shipped, became more furious, and cut most absurd capers until we were within 100 yards of them, when they evidently thought discretion the better part of valor and commenced backing off. Calling to them in the most pacific manner I could assume, and using the whole of my limited vocabulary, I induced one man to stand his ground until I reached him; making him put his weapons down, and showing him we were friendly. I induced the others to approach, but they declined to put their spears down until I took hold of them. They then got close around me, feeling my arms and body, and making hideous noises with their tongues and lips. Bejah was most excited, and with his gun full-cock kept them at length with its barrel as they attempted to get close to him. He said that if they got too close he would not be able to shoot them. They were ready to talk of any place or thing except dead white men, and whenever I attempted this they pushed me freely, saying "Bah!" "Bah!" which I believe was an intimation to quit. Feeling that it would be impossible to take one of these fellows prisoner without using firearms, I determined to return to camp, trusting they would stay and become more friendly. Seeing a number of articles, such as plates, a tomahawk, a quart-pot, &c., which I recognised as my cousin's property, I approached them, determined not to risk losing this evidence. The natives demurred at losing the tomahawk, but I explained that it was the property of dead white men. Returning to camp we kept watch the whole night. The following morning we proceeded to the spot, where there is a soakage, which I have named "Discovery Well," but we could find no indication that our friends had ever been there. However, I felt confident from the evidence we saw there that they had perished, or were murdered, within ten miles of that place. My camels being then in need of water, I determined to travel direct to Joanna Spring, and in so doing we passed, at six miles from "Discovery Well," but a quarter of a mile to the eastward of the position in which the bodies were subsequently discovered. Making further search, without avail, and seeing no more native smokes, I decided to proceed to Derby and secure horses for the purpose of surprising and running down natives, thus compelling them to point out the

spot where our comrades lay dead, for unless we adopted this method I felt we were powerless. In attempting to reach "Jurgurra Creek" we again got into difficulties through the collapse of several of our camels, but fortunately we avoided loss by accidentally discovering a splendid water, which I have named "Rescue Well."

FIFTH EXPEDITION.—Returning to Derby, after some trouble I arranged for the Fifth Expedition, and started out accompanied by Sub-Inspector Ord, of the Kimberley Native Police, Trooper Nicholson, "Bob" and "Ned" (blacktrackers), Bejah, and "Sandy," with 10 camels and four horses. I felt so confident of success on this occasion that I telegraphed within a day or two the date at which we should return to Derby. Making our start on 10th May, we travelled to Gregory's Station, thence up "Nerima" Creek to the desert, making use of the waters before discovered, and carrying from three to four days' supply in our camel-kegs for the horses. On the Queen's Birthday (May 24th) we captured, about 16 miles north-easterly from Joanna Spring, two natives, "Pallarri" and "Yallamerri," who had in their possession pieces of iron broken from a camel riding saddle. Handcuffing the natives, we proceeded to Joanna Spring, thence travelling westerly about 15 miles to the summit of a high sand ridge. Up to this time the natives would talk eagerly of anything except dead white men, and we had, so far, not been able to induce them to do so. Neither would they, without force, go in the direction in which I supposed our friends had perished. A flogging administered to the younger man, "Pallarri," had the desired effect, for the elder man, "Yallamerri," becoming alarmed, then pointed excitedly to the southward, exclaiming, "Purrunng white-fellow! Bah! Bah!" and handcuffed together, they started off at a Chinaman's trot. At six miles from that sand ridge, on the 24th May, we stood over the dead bodies of my cousin, Charles F. Wells, and G. L. Jones. They lay on the top of a sand ridge in the solitude of horrible surroundings, where they had perished from exhaustion and thirst. Carefully packing the bodies, and collecting all the relics of value we could find, we liberated the natives, rewarding them with presents, and started on our return journey to Derby, reaching there on June 10th.

During these search expeditions, which extended over seven months, we travelled 1,800 miles, 820 miles of which was accomplished in the desert.

WATER.—The first water met with of any importance, after leaving Lake Way, was "Lindsay Gordon Lagoon," lat. 27 deg. 20 min. south, long. 121 deg. 32 min. east. Here we found abundance of fresh water, with large quantities of travertine limestone on the surface of the ground, and I have no hesita-

tion in saying that this is a permanent water at very shallow depth should the lagoon become dry. I noted several other spots favorable for obtaining water at moderate depths. There are some excellent clay waterholes in gum creeks lying to the south-west of Lake Augusta, about lat. 26 deg. south, and long. 122 deg. 20 min. east. These holes are from a few chains to a quarter of a mile in length when full, and up to 15 ft. deep, and some of them, in my opinion, will hold from nine to twelve months. I am also of the opinion that water would be found at shallow depths by sinking. At a waterhole in "Charles Wells Creek" the shell of a small tortoise was found, in the back of which a hole had been made by a hawk, or other bird of prey. Near Mount Bates, on a watercourse discovered by Sir John Forrest, travertine limestone is also noticeable, and there are in this vicinity several waterholes with tall ti-tree fringing their banks. Here, again, I believe permanent waters exist near the surface. Entering the desert, beyond Mount Bates an apparently dry stretch of country extends to the northward. Natives at Mount Bates appeared much concerned that we should go in that direction, and informed me that there were no waters. Indeed, we saw no sign that natives had ever been in that country until we neared Mr. Ernest Giles' route of 1876, although I noted a likely spot for finding water (by sinking) in a valley about lat. 25 deg. south. From Mount Bates to the Fitzroy River no surface waters were discovered in the desert, and I am of the opinion that none except native wells are to be found. These are numerous; but without the assistance of a guide, or except by running the tracks of natives, they are most difficult to discover. Indeed, any of these wells may be passed by, within a few yards, without observation. When discovered, they invariably prove dry, or but soakages of a very limited supply, in driftsand over clay or rock. But some good waters, such as "Surprise," "Midway," "Separation," and "Rescue" Wells were discovered, and no doubt others exist. These are chiefly in soft sandstone and driftsand, and from six to twelve feet deep. From the heaps of accumulated debris, which appear to have been removed from time to time, and the numbers of old camping-places on the sandhills around these waters, it would be natural to assume that they have been in use at different periods by the natives for many years. The water at three of the above-mentioned wells is perfectly fresh, and at "Midway Well" it is only slightly saline. The supplies are excellent, and, I feel confident, are permanent, resembling wells sunk along the stock route between the De Grey River and Lagrange Bay, where, I was informed, abundant supplies of excellent fresh water have been found. They are, in my opinion, a drainage from this vast desert area, for there are no surface rivers or creeks to carry flood waters from that region,

where no doubt heavy rains occur at intervals. This is illustrated by the growth of porcupine or spinifex (*triodia irritans*) noted by me at "Sahara" and "Adverse" Wells, where the seed-stalks were as much as 7 ft. in height. Travelling from "Midway Well" northward, throughout the Great Sandy Desert travertine limestone and tall ti-tree are met with in the lower flats, and I noted many spots where I am confident permanent waters would be found at moderate depths by sinking. The water at Joanna Spring or Warburton's Camp 93 is about eight or ten feet from the natural surface, in limestone, and the supply is very strong. Thousands of shell parrots, finches, and pigeons come to water at these good wells when they are in use by the natives, whom the birds seem to follow about. When out of use the wells soon become silted up.

STOCK ROUTE.—So far as water is concerned I think there would be but little difficulty in opening up a stock route between the Fitzroy River and Lake Way for limited numbers of stock by well-sinking, and improving those of a permanent character which are already in use by the natives. But favorable seasons would require to be chosen, viz., after a general rain, when the seed-stalks of the porcupine grass are green and affording a good fodder for cattle, for there is but little else throughout the 500 miles of desert to be traversed. The greatest difficulty, in my opinion, would be found in driving stock, without seriously affecting their condition, over the countless steep, drift sand ridges, which would have to be crossed almost at right-angles for hundreds of miles. Therefore I think the idea might be termed impracticable.

NATIVES.—The first aborigines met with were near Mount Bates, on Sir John Forrest's route, where the dialect is apparently similar to that of those frequenting the Upper Murchison country. These natives were shy, and of fairly good stature. We got on friendly terms with them, but I was unable in that short space of time to obtain much information from this tribe. The boundary of their country did not extend more than a few miles beyond Mount Bates, in a northerly direction, and although they were anxious to show us waters to the eastward or north-west, they declared that there was no water to the northward, and were most concerned at our travelling in that direction. Between Ernest Giles' route and "Midway Well" we noticed many recent tracks on the sand ridges, and surprised a small number, who fled, panic-stricken, at sight of us; the same thing happening at "Sahara Well." At this place, on the day after our arrival, one of the Afghans saw two, evidently spies, unaware of his close proximity to them, peering at us over a sand ridge as we worked at the well; but when he called to them they fled, leaving a spear and "woomera" behind them. At "Adverse Well" we were surprised at night by 11

warriors, who came within a hundred yards of our camp and called the word "Yarra" to us. Believing their intentions were friendly, I met them by moonlight on a sand ridge. They each carried two waddies, and one man, whose forehead was painted white, wore a plume of white feathers in his hair and carried a shield. He was the chief, and after satisfying himself that our intentions were friendly, he gave a signal, at which each man threw his waddies on the sand and went away, leaving them there. It was fortunate that we had been unable to travel direct, by night, to this well, which I had found by tracking natives during the day, when we surprised an old man and several children. We had camped 15 chains to the westward, intending to look for the well the following morning. In doing so we found upwards of 30 spears in a bundle near the well, and undoubtedly these warriors were lying in ambush to defend their water. The old man, women, and children had gone, and we were in camp two hours before the others apprised us of their presence. At "Discovery Well" we were challenged by seven armed men, who, running to an open spot, brandished their spears and executed a war dance, repeatedly calling to us to come on ("Yarra!"). I managed to get up to this lot without resorting to the use of firearms, but was unsuccessful in establishing a very friendly relationship with them. One man, whom I recognised as the chief "butcher" of the party, was besmeared from head to foot with red ochre, which he put on after first sighting us. They were very bold, fair-sized men, and apparently did not know the use of firearms. They frequently pushed me and said, "Bah!" "Bah!" which means "go," or "Go quickly." The dialect here is altogether different to that of the tribes inhabiting the Fitzroy or Margaret Rivers. The two boys who accompanied me from those places could not understand a single word of the language of these desert natives, or of any others we met with in the desert, and in fact could only converse between themselves in pigeon English. I had difficulty in inducing two young men from the first tribe to the northward of "Joanna Spring" to accompany me to that place. They were even unacquainted with its position, although they could converse with the tribe "Kammarra," inhabiting that region. They were very anxious to return to their own country when their mission was fulfilled. There are several tribes between Mount Bates and the Fitzroy River, and on this watershed many tribes of different dialects exist, and here, probably owing to the plentiful supply of game and other food, their boundaries enclose a much smaller area of country than is usual. The desert natives are of medium stature and good physique. They generally travel about in small numbers, up to about 20 in all—no doubt owing to the limited supplies of water in some of the wells or soakages, and also to the scarcity of game

and other food around them. In the cooler months they are in good condition, but have a hard battle to subsist during the summer, owing to the terrific heat. To protect their feet from the burning sands they make shoes from the bark of shrubs, chiefly the "parrot plant" or "Hack's bean." They rarely construct anything more in the way of a dwelling than a rude bough shade to protect themselves from the sun, camping on the tops of the sand ridges in the summer months, as these spots are coolest at night. They frequent, whilst they last, the poorer supplies of water, where game is more plentiful, and fall back on the permanent wells as a last resource. Their chief food is a species of wallaby and bandicoots (both of which hide themselves under the clumps of porcupine grass by day and subsist without water), iguanas, lizards, white ants, and varieties of seed, particularly acacia seeds, which they pound up and mix with white ants and partly bake. They carry water in bags fashioned from wallaby skins in the following manner:—They make an opening in the neck of the animal, and, pulling the skin off the carcase, tie the legs with sinews, thus forming a rude bag, with the hairs inside; this they fill with water. They tame the dingo, or native dog, which hunts for them, and call it by a whistling sound made by drawing the breath inwards. Beyond pouring a little water over their heads to cool themselves, their toilet is quickly completed. They wear nothing but a girdle of string, manufactured by themselves from human hair and fur, and worn round the waist, adorned with the tails of rats, &c., or a bunch of green leaves suspended in front. The hair of the women is cut short, whilst the men wear theirs in a chignon at the back of the head; their beards are brought to a point and tied with a piece of string. At "The Albert Caves" ("Calvert Range") we noted, on the rocks, several drawings, chiefly tracks of animals and birds. These, I think, are more frequently made by children at play. All the tribes from the Fitzroy River to Mount Bates apparently practice the same rights of incision and circumcision, and their marriage laws are similar to those of other tribes. I ascertained that those on the "Fitzroy," and as far south as "Joanna Spring," are divided into four families, who use the same four names, viz., "Panika," "Buronng," "Kyimmba," and "Buddijerra," to prevent intermarriage, and as far as I could gather they are given in marriage whilst children. At "Joanna Spring" I found two bundles, each consisting of about 20 flat pieces of carved wood, with holes at one end. These ranged from very old ones to some made recently. They were hidden beneath some bushes with a bunch of leaves placed under either bundle to protect it from the ravages of white ants. These pieces of wood are used during some of their mystic ceremonies, and, I believe, are similar to those described by Mr. Gillen ("Bull-

roarers"). My boys informed me that they were used during the time of the initiation of young men, when a new one is made for each candidate; the old ones, they said, belonged to the old men. They are variously carved, and appear not to have had much usage, though weatherworn in proportion to their age. In all probability they are kept as records. These natives place their dead in a litter in the forks of trees, returning to the spot two or three weeks later to break the leg and arm bones, from which they extract and eat the marrow. The near relatives are not present at this ceremony. Dead babies are placed in a canoe-shaped piece of bark or wood ("Coolamin"), bound round with strips of bark. The mother carries this about with her for some days. On the Fitzroy River no male is permitted to marry until he grows a beard and whiskers, but he is allowed a boy for a companion until he has a wife. During his batchelorship he is not allowed to eat eels. The women there are prohibited from partaking of wild turkey, owing to the superstition that by so offending they will develop a growth of feathers on the stomach.

SMOKE SIGNALS.—I spent some time, when occasion permitted, in endeavoring to ascertain something of smoke signals, but after various enquiries I was, as at other times, unsuccessful. I gathered from these natives that they had no code, and the only method of signalling in use amongst them was by burning scrub whilst apart, hunting, merely for the purpose of locating to one another their whereabouts, and by prearrangement in such cases as the following:—After a thunderstorm has occurred at a distance an able-bodied native goes to ascertain if water is to be found in that locality, and he arranges, if successful, to send up a smoke as a sign to his friends to follow him.

Herewith I append a vocabulary of a few native words, with the meanings. These were collected from the tribe to the northward of and at "Joanna Spring":—

NATIVE WORDS.			MEANINGS.
Napa	...	...	Water.
Wallu	...	...	Fire.
Myi	...	...	Food.
Tcharramarra	...	...	Spring.
Jina	...	...	Foot.
Murra	...	...	Hand.
Jibir	...	...	Man.
Wondanni	...	...	Woman.
Lummo	...	...	Sleep.
Purrunng	...	...	Dead.
Mabu	...	...	Good.
Wontu	...	...	One.

NATIVE WORDS.		MEANINGS.
Kutha, or Kutbarra	...	Two.
Ya, or Yoi	...	Yes.
Waddji	...	No.
Kagu	...	Far away, or distant.
Yarra	...	Come.
Bah! Bah!	...	Go, or Go quickly.

In conclusion, I wish to make special reference to the loyalty shown me by the other officers and members of the Expedition, who all did their utmost to make the work a success. On several occasions during our most trying and anxious time I received great kindness from Messrs. Keartland and Trainor, and I found a most faithful and valuable assistant in the Beloochee, "Bejah."

I would also take this opportunity of thanking the Premier of Western Australia (Sir John Forrest), Colonel Phillips (Commissioner of Police), Mr. Harry Johnston (Surveyor-General) and members of his staff, Inspector Ord, of the Kimberley Police, Doctor House (Government Resident of Derby), and the numerous settlers and residents of the Kimberley district for the many kindnesses to myself and party, and the assistance rendered me in connection with the Search Expeditions.

L. A. WELLS,

LEADER CALVERT EXPEDITION.

To the President of the Royal Geographical Society,
Adelaide Branch.



PUBLICATIONS, &c., RECEIVED.

The following proceedings, publications, and maps, &c., have been received since the issue of Vol. II., and for which the Society is deeply indebted to the donors, viz.:—A valuable series of the "Geographical Journal," and also of "Proceedings," sent by the Royal Geographical Society; pamphlet by Lieutenant-General Chapman from Royal Geographical Society, also "Proceedings of the Royal Colonial Institute, London," by L. H. Sholl, Esq.; also, Transactions of the Scottish Geographical Society, and of Manchester, Liverpool, and Cornwall. Also a valuable series of "Publications of the Tyneside Geographical Society," Newcastle-on-Tyne; and a large and complete series of "Proceedings of the Dublin Royal Society." Also a very valuable series of publications from the Royal Society and Geological Survey of Canada, Ottawa; from the American Geographical Society, New York, and the Smithsonian Institution, Boston, U.S.; from the American Philosophical Society; and the "Journal School Geography," New York; and also papers from the Philadelphian Museum and the American Museum of Natural History. Also, "Transactions from the Literary Society, Quebec," the "American Museum of Natural History"; and from the South African Philosophical Society, Cape Town; also, the first volume of the Royal Geographical Society, dated 1861, and a chart dated 1846, showing the proposed communications between the east and west continent, from J. H. Angas, Esq.; a volume of the Royal Geographical Society, dated 1876; Report of the International Congress, London, by David Murray, Esq.; "Journal of the Imperial Institute, London"; "Transactions of the Royal Asiatic Society of Bengal, Calcutta, and of the Royal Asiatic Society, Ceylon;" Rules of the Royal Society's Club, London, from the Honorary Secretary, D. Lewis Poole, Esq.; University Calendar, from the Imperial University, Tokio, Japan; part 2 Colonial Institute, from W. H. Tietkens, Esq.; one volume "Pictorial New Guinea," from J. W. Lindt, Esq., F.R.G.S. Also, Proceedings of the Geographical Societies of Victoria, New South Wales, Queensland, and Perth, Department of Mines and Geological Survey, Victoria, New South Wales, Queensland, New Zealand, and Perth, W.A.; Journals of the Royal Societies of South Australia, Victoria, and New South Wales; Illustrated publications of the Australian

Museum, Sydney, from Robt. Etheridge, Esq.; "Proceedings of the Australasian Association for the Advancement of Science" for 1895 and 1898, from Professor Liversidge, F.R.S., F.R.G.S., University, Sydney; Historical Review of the Royal Geographical Society of Australasia, Queensland, by Alexander Muir, Esq., J.P., and an Address on Geography in Australia, by J. P. Thomson, Esq., F.R.G.S., Brisbane; pamphlet on the Aboriginal Carvings of Port Jackson, from the Hon. Minister of Mines, New South Wales; also copies of Anthropological Journal, "Science of Man," from the editor, Dr. Carrol, Sydney; Report of Public Museum, Library, and Art Gallery, Adelaide, from the Director and Secretary, Robert Kay, Esq. The Society has also received pamphlet, "Land of Promise," and Gold Mining Statistics, from Department of Mines, Perth; Producers' Gazette and Settlers' Guide, from Hon. Minister of Lands, Perth; Mining Handbook of Western Australia, from J. P. Woodward, Esq., F.G.S., F.R.G.S.; several valuable colored maps and survey reports from the Government of Western Australia; survey and geological reports from the Department of Lands in Victoria, New South Wales, Queensland, New Zealand, and Perth, W.A.; a valuable series of Proceedings from the Polynesian Society, Wellington, New Zealand; Geological Reports and Surveys of South Australia, by the Government Geologist, H. Y. L. Brown, Esq.; and two volumes "Aborigines of Victoria," by R. Brough Smith, Esq., F.L.S., F.G.S., &c. Map of the world, on Mercator's plan, up to date, from Dr. Herman, Berghans-Gotha; an oil painting of a South Australian aboriginal, Tommy Walker, from Mr. Oscar Tristrom; four drawings of Mr. Stephen King's original illustrations of scenes of the McDouall Stuart Expedition, from Mrs. Ann Billiatt, London; Well's plan of route traversed by the Calvert Expedition, from the Surveyor-General, Wm. Strawbridge, Esq. The Society have also received a series of valuable reports and pamphlets, embracing the explorations and discoveries of Prince Roland Bonaparte, Paris; Bulletins de Société Géographie Commerciale de Paris, et de Marseilles, Tours, Toulouse et de Havre; Compte Rendus des Seances, Paris; Revue Géographie Internationale de Paris; Explorazione, Geografia de Milano, et de Lima. Also Bulletins from the Societies of Finland, Schleswig Holstein, Neufchatel, Wurtemberg, des Sciences Internationale de l'Algerie; and also Syrischen Wüste Nach Mosul, from Dr. Max Von Offenheim, University of Heidelberg.

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Johnson, J. A., J.P.	Smith, T. Barr
Lloyd, J. S.	Smith, Sir E. T., K.C.M.G.
Lewis, Hon. J., M.L.C., J.P.	Smith, E. M., J.P.
Magarey, A. T.	Sabine, C., J.P.
Magarey, Thos., J.P.	Strawbridge, W., J.P.
Mason, J. S. G.	Simpson, A. M., J.P.
Mayo, G. Gibbes	Simpson, A. A.
Murray, D., J.P.	Stock, R. A., J.P.
Muecke, H. C. E., J.P.	Sholl, L. H., J.P.
Milne, W.	Sparks, H. Y., J.P.
Milne, Geo.	Snow, F. H., J.P.
Magarey, W. A.	Sanderson, F. V.
Moncrieff, A. B., C.E., J.P.	Stewart, Graham
McDiarmid, A.	Schlam, Sigismund
Newland, Simpson, J.P.	Thomas, R. K., J.P.
Newman, Edgar H., LL.B.	Toms, S., J.P.
Phillipps, W. H.	Tod, P.
Philipson, N. E., J.P.	Van Senden, E. W.
Parkhouse, T.	Way, Right Hon. S. J., D.C.L., P.C.
Paltridge, J., J.P.	Wallis, F. S.
Parsons, Hon. J. L., J.P.	Wilson, H. P.
Perks, Dr.	Wood, P.
Riddoch, Geo., J.P.	Wilkinson, W. B., J.P.
Russell, W.	Whitham, Chas. L.



“The Chief gazed for a moment at his dead kinsman, then plucked his spear from the ground and rushed to avenge his death.”

But SOLOMON. From a sketch by Miss K. Lungley. [See page 40.

Fig. 1.

[See page 69.

Fig. 2.

[See page 69

Fig. 3.

[See page 74.

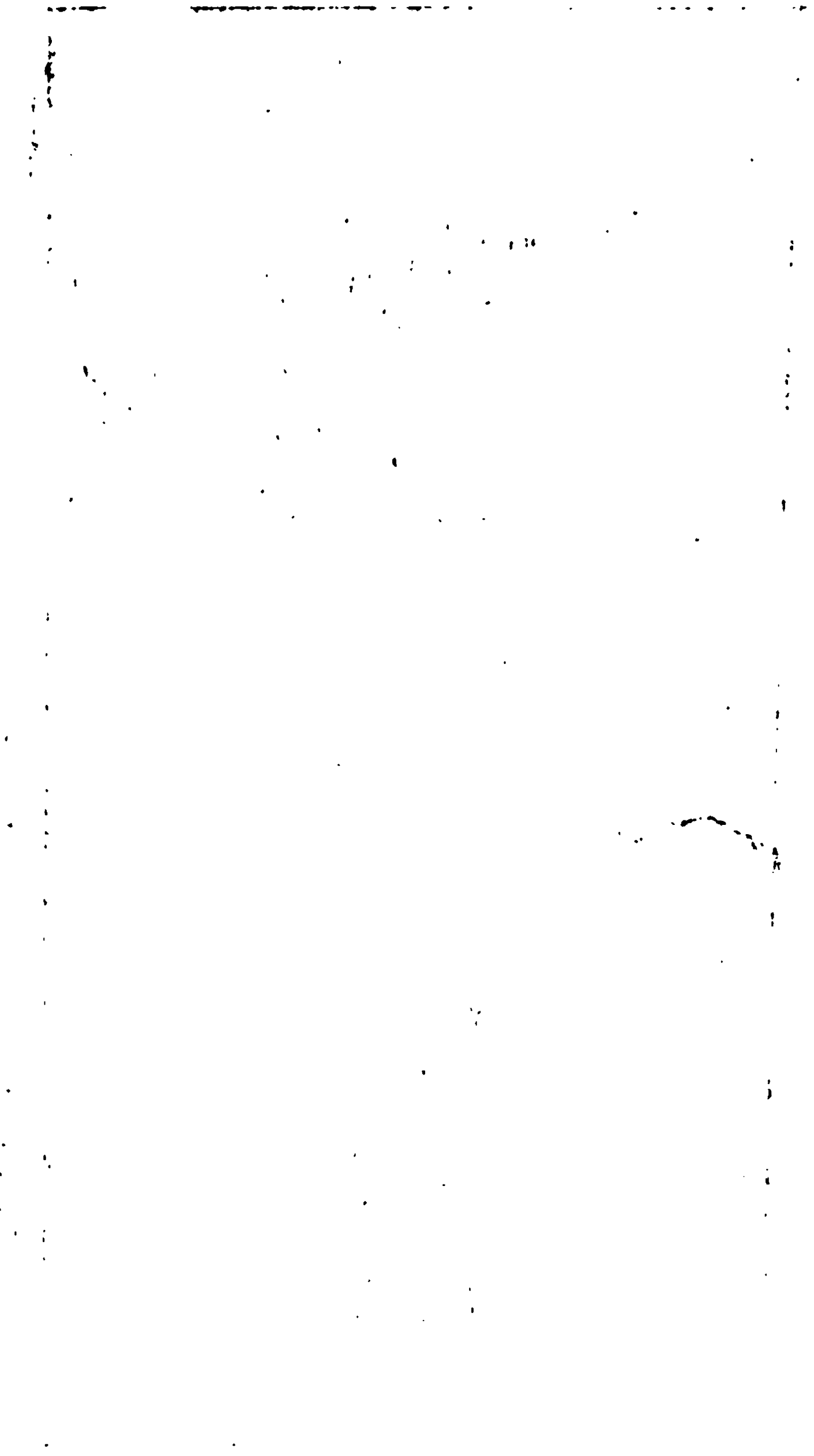
Fig. 4.

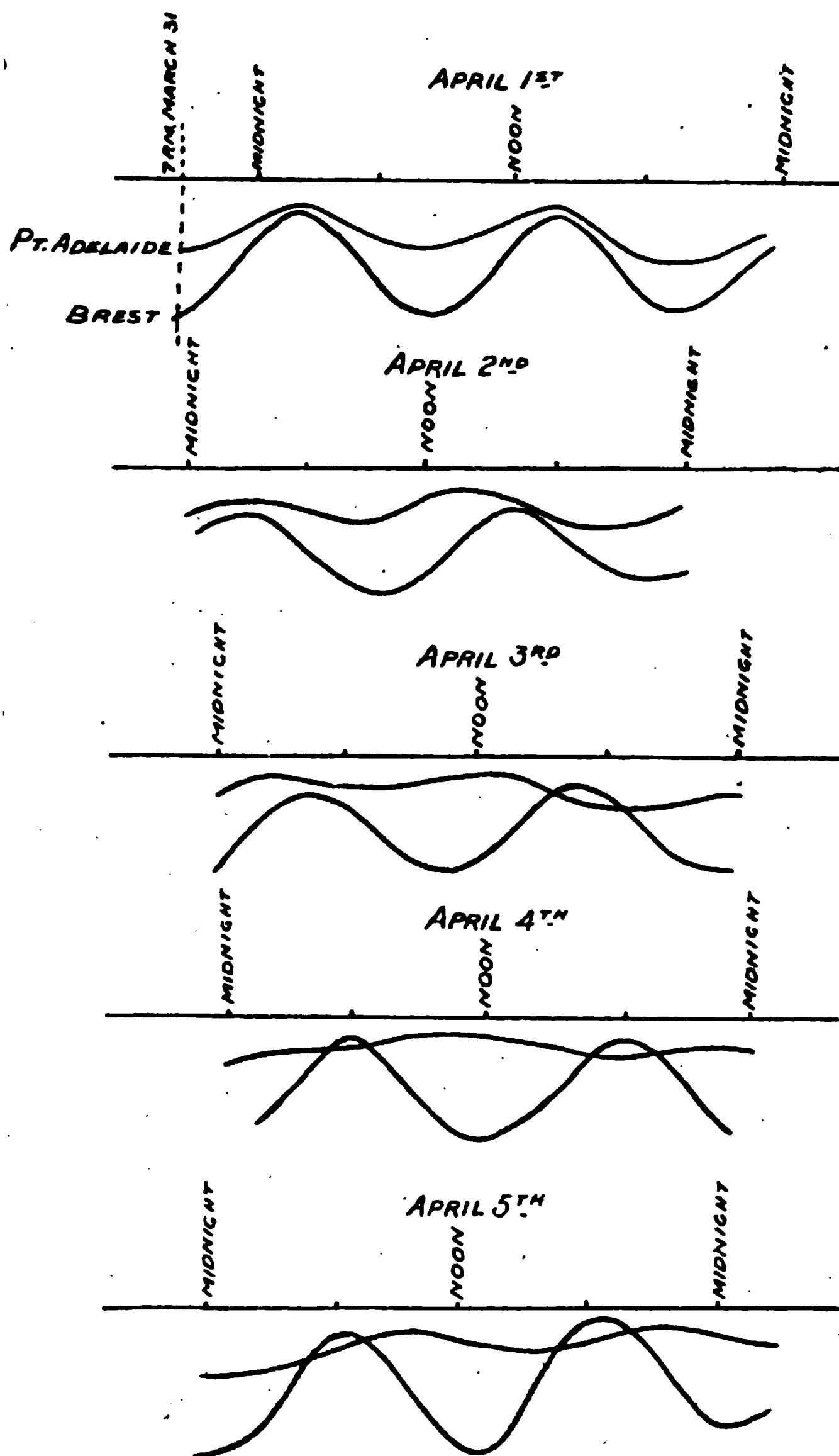
[See page 74.

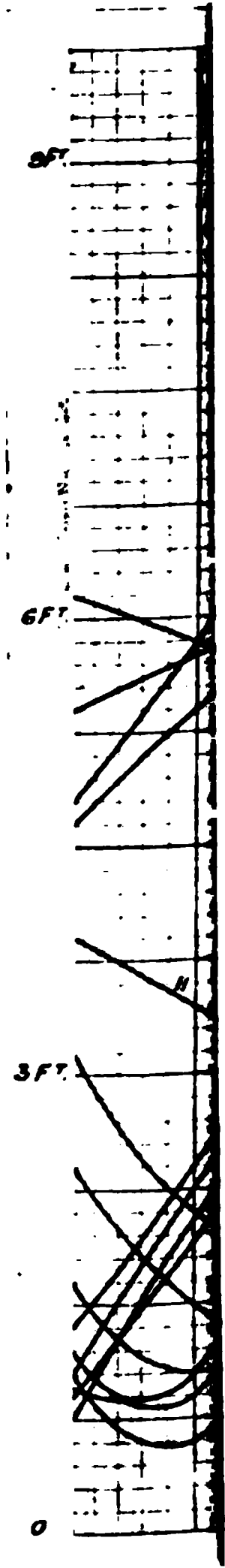


WAGGON CAMPLB.

[See page 87.]







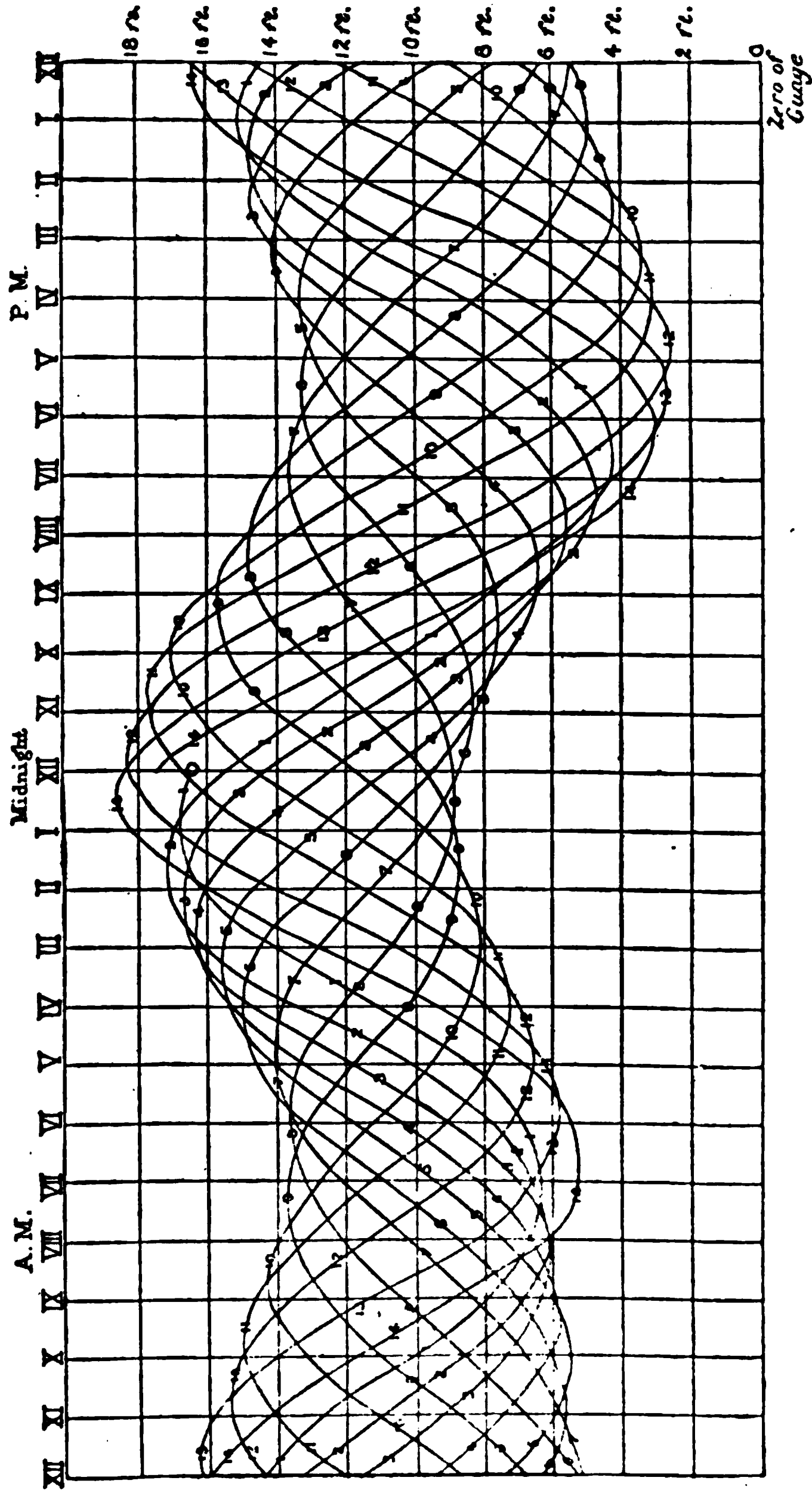


PLATE VI.—Tide-curve for Bombay from the beginning of the civil year 1884 to the midnight ending January 14, 1884, or from 12h. December 31, 1883, to 12h. January 14, 1884, astronomical time. [See page 97.]

[See page 121.]

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EASTER ISLAND.

[See page 127.

Side View.

Back View.

PARTLY SCRIED FIGURE IN THE CRATER OF ROROKA (OUTU ITI).

[See page 130.

PARTLY BURIED FIGURES ON THE OUTER SLOPE OF THE CRATER, RUBOKA. MOUNT "TOPAZE" IN THE DISTANCE
[See page 130.]

EASTER ISLAND.

MAORI.

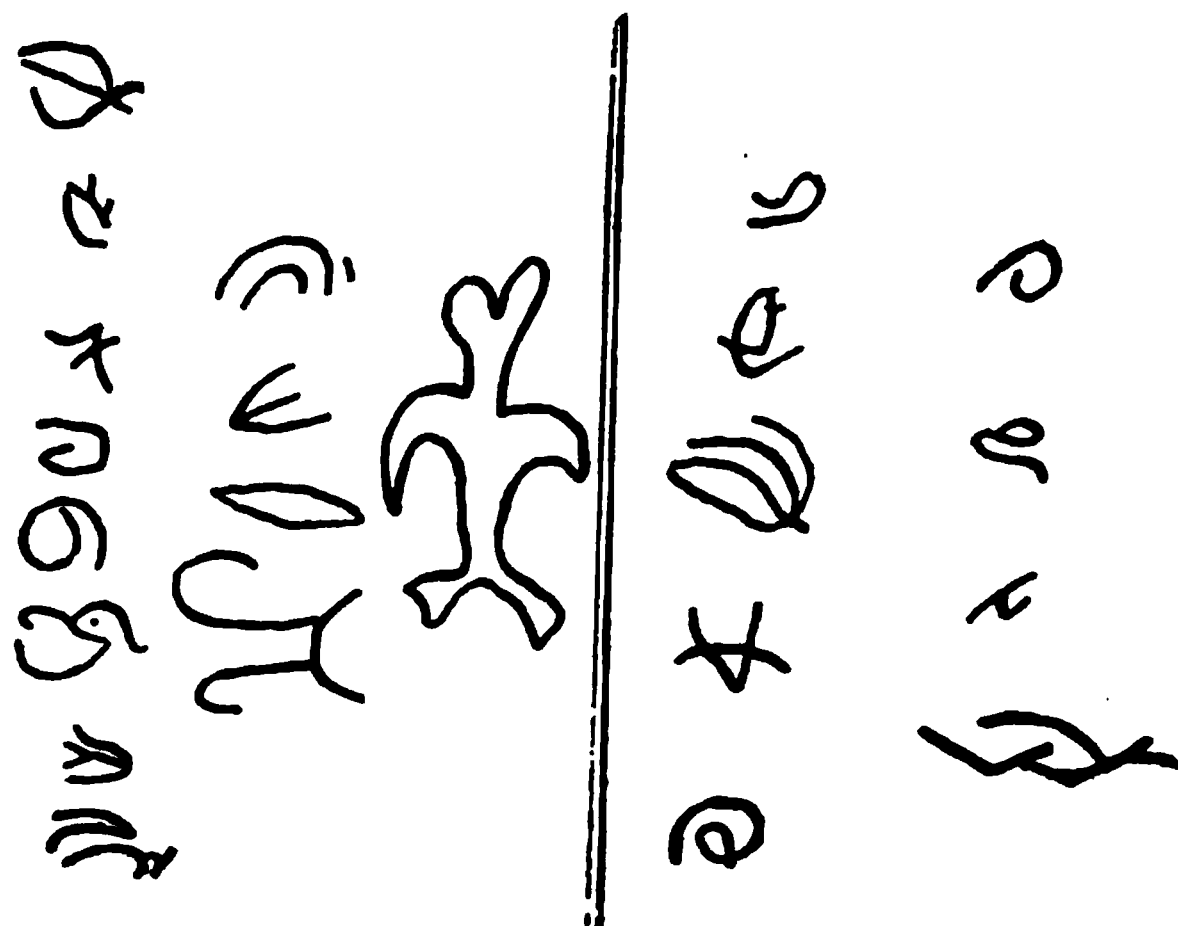


PLATE III.

[See page 136.]

PROCEEDINGS
OF THE
Royal Geographical Society
OF
Australasia :
SOUTH AUSTRALIAN BRANCH.

SESSIONS 1898-9 to 1900-1.

VOL. IV.

ADELAIDE :
W. K. THOMAS & Co. "THE REGISTER" OFFICE,
GRENFELL STREET.
1901.

CONTENTS.

TWELFTH SESSION.

Report of Council Meetings, Session 1898-9	1
Report of Annual Meeting, June 16, 1899	5
"Natives of Central Australia," by <i>F. J. Gillen, S.M.</i>	17

THIRTEENTH SESSION.

Report of Council Meetings, Session 1899-1900	29
Report of Annual Meeting, June 8, 1900	33
"Native Tribes of Upper Murray," by <i>Danl. Mathews</i>	43
"Chinese Notions on Geography and Geomancy," by <i>Rev. Dr. Eitel, M.A., Ph.D.</i>	53

FOURTEENTH SESSION.

Report of Council Meetings, Session 1900-1901	69
Report of Special Meeting, May 31, 1901	69
Report of Annual Meeting, May 31, 1901	77
"China, and the Far Eastern Question," by <i>Rev. Dr. Eitel, M.A., Ph.D.</i>	91
"Adventure in the first steamer 'Melbourne,' out of the Mouth of the River Murray," by <i>the late Hon. Saml. Tomkinson, M.L.C.</i>	110
"On Totems; their Universality and Varied Developments," by <i>Thos. S. Reed</i>	115
List of Publications Received	125
Appendix A. Letters from E. J. Eyre and enclosures thereto . .	127
Appendix B. Letter from Mr. C. H. Harris on "Australian Magnetic Declinations"	145
List of Members	149

PROCEEDINGS
OF THE
Royal Geographical Society of Australasia
(SOUTH AUSTRALIAN BRANCH).

TWELFTH SESSION, 1898-9.

COUNCIL MEETINGS.

June 21, 1898.

Present—Eight.

Only formal business was transacted.

August 16, 1898.

Present—Eight.

Resolved—“That this Council recommends that the Royal Geographical Society of Australasia should recognize and record eminent services in the cause of Geographical science ; and that, to give effect to its appreciation of the services of explorers and scientists, medals should be awarded by the Society in gold, to be called “The Society’s Medal,” such medals to be issued only with the consent of all the Branches, each Branch to bear its proportion of the cost. And that branches of the Society should be permitted to issue silver and bronze medals, bearing the name of the local Branch, for services performed within its boundaries, or for such services as the branch may consider worthy of such distinction.”

Resolved—"That a circular be sent to each Branch of the Royal Geographical Society of Australia and to the Royal Society in each Colony of Australia, soliciting their early and active co-operation in urging upon their respective Governments the desirableness of immediate action in collecting all available data in respect to its Aborigines, and the photographing on a scientific basis of typical natives—man and woman—of each tribe."

Received, from Mr. A. D. Breaden, an enlarged photograph of a sketch of Gosse's Tree. To be acknowledged with the thanks of the Council.

Mr. Thomas Gill presented to the Society an old "Journal of the Royal Geographical Society," dated 1861. Mr. Gill received the thanks of the Society for his gift.

September 27, 1898.

Present—Six.

The Secretary reported that Earl Kilmorey had delivered a lecture on September 16, "On Personal Reminiscences of Foreign Travel," and that Mr. F. J. Gillen, S.M., had delivered one on September 23, "On the Natives of Central Australia."

Received, letter from the Victorian Branch, stating that it was unable at present to share in the cost, or take action, in the matter of providing medals to scientists and explorers, as suggested by this Society. To be acknowledged.

December 1, 1898.

Present—Seven.

The President reported the death of Mr. G. W. Goyder, C.M.G., the ex-President of this Society.

Resolved—"That the Council records the high esteem in which the late Mr. G. W. Goyder, C.M.G., was held by the members of the Society, and its deep appreciation of the great interest which he always manifested in its welfare, and the invaluable services which he rendered to this Society, and to Geographical Science generally."

Mr. Sabine laid on the table some photographs of natives of the Mount Eba tribe which Mr. Max Doenau had presented to the Society. Mr. Doenau to be thanked.

March 24, 1899.

Present—Eight.

A letter was read from the President of the Royal Geographical Society, London, soliciting help for the proposed Antarctic Expedition. Resolved that the Society regrets its inability, from lack of funds, to contribute to the cost of the Expedition.

May 26, 1899.

Present—Ten.

It was resolved to ask His Excellency the Governor to accept the position of Patron.

ATTENDANCE ROLL.

SESSION 1898-9.

COUNCIL MEETINGS HELD, 6.

S. Newland, J.P.	..	..	..	..	..	..	..	..	6
Sir Langdon Bonython, J.P.	..	..	..	..	..	..	..	..	2
W. P. Auld	..	..	..	..	..	..	..	..	6
A. W. Dobbie, J.P.	..	..	..	..	..	..	..	..	4
C. Sabine, J.P.	..	..	..	..	..	..	..	..	5
A. T. Magarey	..	..	..	..	..	..	..	..	4
G. G. Mayo	..	..	..	..	..	..	..	..	3
C. Hope Harris	..	..	..	..	..	..	..	..	3
Thomas Gill, J.P.	..	..	..	..	..	..	..	..	6
Hon. J. Langdon Parsons, M.L.C.	..	..	..	..	..	..	..	..	2
E. H. Newman, LL.B.	..	..	..	..	..	..	..	..	6

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH

ANNUAL MEETING.

The Annual Meeting of the South Australian Branch of the Royal Geographical Society of Australasia was held on Friday afternoon, June 16, 1899, at the Refreshment Room, Adelaide Town Hall. There was a large attendance of members of the Society, presided over by His Excellency the Governor, who was accompanied by Captain Wallington. The Society exhibited a pair of "death shoes," used by natives when stalking an enemy who was to be disposed of; an interesting specimen of a fasciated branch of sheoak; a painting of the tree which John McDouall Stuart marked in Van Dieman's Gulf on July 24, 1862, after he had crossed the continent; a photo of a picture of the tree marked by Gosse on Stevenson Peak, Petermann Range, Northern Territory; and the growth cut by Mr. W. H. Tietkins from the tree marked by Gosse, and upon which the initials were plainly visible.

Lord Tennyson, in opening the proceedings, said:—

Gentlemen—It was with much gratification that I accepted the kind invitation of the Council of the South Australian Branch of the Royal Geographical Society of Australasia to preside at your annual meeting to-day. I feel, however, that I have scant right to the high honour of occupying the presidential chair even for an hour to the exclusion of your accomplished President. You have asked me to do so, perhaps because I delight in "Robinson Crusoe," whose statue, Professor Owen declared ought to stand in the central hall belonging to the Royal Geographical Society of Great Britain; or because I am fond of "Gulliver's Travels"—South Australia being Swift's Lilliputian kingdom, although possibly from the fact of the non-existence of any proper history of South

Australia, or of any correct geographical primer of that province, I have not been able as yet to find here relics of that microscopic people. Or perhaps it is because I am a relation of Franklin's—(cheers)—and a connection of Flinders—(cheers)—who, as we all know, discovered in 1802 portion of the coastline of South Australia; or perhaps, because a picturesque lake in New Zealand is called Lake Tennyson, the latitude and longitude of which I leave to this Society to determine. I have a picture of the lake by Sir Frederick Weld, but I cannot for the life of me locate it on any map. (Laughter.) I first took a genuine interest in Australian geography when years ago, my family became acquainted with an old lady of a hundred, whose husband had served under Captain Cook, and who had herself known the famous captain and explorer in her girlhood. South Australia is the land of the canonised heroes of Geographical Societies, of such courageous explorers as Sturt (whose companion in travel, Dr. Brown, I am pleased to learn is still living among us), Babbage, Eyre, Stuart, Warburton, Giles, Winnecke, Tietkins, Wells, David Lindsay, and others. Therefore your Society holds an exalted position among Geographical Societies in general. The accumulation of the knowledge of your explorers is valuable for yourselves as matter for your special discussion, and is of scientific worth to the world after having been sifted by you. Lately I have been reading with deep interest Professor Spencer's and Mr. Gillen's monumental and admirable work on "The Native Tribes of Central Australia." (Cheers.) The Royal Society and the Royal Geographical Society of Great Britain look to you to preserve the beautiful ancient native nomenclature of places, to pursue your researches as far as you can, and as soon as you can, with regard to the ancient customs, laws, manners, languages, modes of life, religious symbols, rites, beliefs of these Australian aborigines, for they are, as your anthropologists say, an absolutely unique collection of peoples, closely resembling palaeolithic man, and are evidently fast dying out. The museum adjoining your Public Library already contains an unrivalled collection of their shields, weapons, domestic utensils, and totems, which I hope to hear ere long have been catalogued and photographed. The white races in past years have been too apt to consider that the ignorant savage black races are ruthlessly to be down-trodden and stamped out, thus trampling on the sacred rights of human liberty and human life; but both from private and public information I am aware that the blackfellows in South Australia are, and have been, well treated by the settlers. The British Government and the British people look to you and

to the Government of South Australia to continue setting the noble example of protecting these aboriginal inhabitants, and of helping them with the rations and the necessaries of life in periods of want and distress, and of treating them with the utmost care, tenderness, justice, and forbearance. It is to the eternal honour of South Australia that among the earliest of their colonial appointments was a Protector of Aborigines. Let me recall to your minds that it was Sir Samuel Davenport, who, in his remarkable inaugural address in 1885, put before you certain objects of attainment, which are necessarily more or less divided into the academic and the practical. Firstly, he mentioned "educational advancement." That means, I presume, primarily, that stress should be laid on the immense importance of the teaching, by our most approved and interesting methods of geography, more particularly in its relation to anthropology, archaeology, history, and politics. Thus boys and girls would early realize that their country, their province, their borough are very small affairs in the roll of the ages, that "the cackle of their burghs" is not "the murmur of the world," but that on the other hand they belong to the mightiest Empire the world has ever seen, and yet that there were vast races, vast empires, and vast civilizations before Great Britain was even dreamt of. Secondly, some of the practical "natural fruits" of your Society, which are of value to the commercial business of the Empire, were stated to be "the investigation and discovery to our own knowledge and advantage of the features and resources of our own territory." This implies the accurate mapping, according to systematic measurement, and the defining in strict and precise scientific phraseology of mountains, hills, vales, plains, deserts, oceans, lakes, rivers; the knowledge of the particular laws which determine the configuration of our globe's surface; the oceanography of the various seas; the finding out what seas, lakes, and rivers are good for pisciculture; what localities are suitable for mining or for the maintainance of various animals, especially of sheep and of cattle; what regions and soils are fitted for agriculture, horticulture, aboriculture, and fungiculture. This last, of course, includes olive culture and castor oil culture, both of which cultures ought surely to be fostered and encouraged here, seeing that olive trees and castor oil plants grow like weeds in not a few places in South Australia; and that there is an increasing demand for both olive oil and castor oil in Great Britain and her colonies. Moreover, it is a known fact that the small quantity of olive oil that you produce is the best to be obtained anywhere, and indeed, of late, there have been repeated complaints

in England of the inferiority of the olive oil, mostly imported from Italy. Perhaps, as is the case in some of the States of Southern Europe, the family culture of the olive in certain districts, selected by yourselves might prove to be a successful method of cultivation—the men of the labouring class planting olives on their plots of ground and their families gathering the berries when ripe, and forwarding them at once to central depots, presided over by Italian or other experts, to be pressed. Thirdly, Sir Samuel Davenport insisted that your Society ought to be forward in “welcoming and facilitating in every way in our power corresponding labours of adjoining colonies and countries. and, in fine, co-operating with the now numerous and eminent class of working men in the world, who are the honoured instruments in the hands of a benign Providence in revealing the rich treasures of creation, promotive of the employment, industry, commerce, wealth, happiness, and peace of the human race.” With these striking words, gentlemen, I shall conclude my remarks. A more compact or more practical presentment of your duties as a Geographical Society could not have been given. Before I resume my seat I would respectfully ask you to grant me your authority, if it is found consistent with your business to-day, to forward the hearty congratulations of your Society to the most popular of all Societies, the Royal Geographical Society of Great Britain, on their zeal, and on the zeal of their President, Sir Clements Markham, on behalf of the proposed Antarctic expedition, and on the co-operation with them of our Teutonic cousins, the German people, in that great enterprise.

The President then delivered his Annual Address, as follows :—

PRESIDENT'S ADDRESS.

The President (Simpson Newland, Esq., J.P.) read the following address :—

Since the last Annual Meeting your Council has held six meetings. By the lamented death of the late Mr. G. W. Goyder, C.M.G., and of the late Hon. Dr. Campbell, your Society has lost two of its oldest members. Mr. Goyder had filled the offices of President and Vice-President, and has rendered invaluable services to this Society and to geographical science generally. Dr. Allan Campbell was one of the founders of this Society, and had ever manifested the deepest interest in its welfare.

Papers have been read during the year :—On September 16, by Earl Kilmorey, on “Personal Reminiscences of Foreign Travel ;” and on September 23rd, by F. J. Gillen, Esq., S.M., on “Natives of Central Australia.”

ANTARCTIC EXPLORATION.

The interest in this subject continues unabated, and I am pleased to be able to say that there is now every prospect of an extensive exploration of the south polar regions being shortly accomplished in a scientific and systematic manner.

In April last, the Belgian expedition under the command of Captain Adrian de Gerlache, which has been engaged in exploring these regions, arrived unexpectedly at Puntas Arenas, a port in Chili. Captain de Gerlache started from Antwerp in the "Belgica," an auxiliary steam yacht, in August, 1897, and after calling at South American ports and wintering at the Falkland Islands, proceeded to Graham Land, situate due south of Cape Horn. On leaving, he coasted along the great ice barrier which bars the approach to the South Pole, and then made for Victoria Land, which, however, he did not reach. The "Belgica" was icebound for two months, but in spite of this and numerous other hardships and drawbacks, Captain de Gerlache accomplished much useful and important work. He states that during the long voyage he called at Hughes Bay, Palmer Land, and that he penetrated the ice region in previously unexplored regions, and discovered much new land. The furthest southerly point reached was latitude 71.36, longitude 92, a little west of Alexander Land, from which point there appeared to be an open sea to the far south. Among other interesting features seen along the land traversed were a number of active volcanoes. A fuller report of the voyage will be awaited with pleasure by those who are interested in the exploration of Antarctica. Apparently, the difficulties encountered compelled the commander to alter his programme; as he originally intended, after skirting the great ice bar, to steam back to Melbourne, and after reprovisioning his ship, to sail for Victoria Land, and there accomplish the most important part of his task. He states that he will not return for another winter.

A further expedition, generously equipped by Sir George Newnes, under the leadership of Mr. C. E. Borchgrevink, sailed from England during last year, and reached Hobart in the latter part of November, where Mr. Borchgrevink and his party were accorded a most enthusiastic reception, and received congratulations and best wishes for their success from the various Geographical and Scientific Societies and others throughout Australia. Their stay in Hobart was a brief one, and they left for the scene of their labours amidst the greatest enthusiasm. The vessel returned to Tasmania for repairs in about four months' time, leaving behind the commander and most of the party in the prosecution of their work. Little information could be

obtained from those on board, but it is believed that considerable danger and hardship were experienced. The expedition is well equipped and provisioned for a two years' absence.

The largest and most important expedition, however, is now in course of preparation. The Royal Geographical Society in London, have for some time been working for the purpose, but although they strongly urged the Imperial Government to undertake the work, the Government did not see their way to do so directly. They, however, expressed their interest in the matter, and promised to assist in the outfit of the expedition by lending instruments and by placing any experience and information which they have at their command at the disposal of those selected to conduct the enterprise. A joint Committee of the Royal Geographical Society and the Royal Society was then formed to obtain funds by public subscriptions for the equipment of a National Antarctic Expedition, and their efforts have been successful. This expedition will be dispatched in 1900, and will co-operate with another which Germany is sending out at the same time, each party taking different regions in the Antarctic Circle.

It must, however, not be forgotten that the success of launching the English expedition is due to the splendid liberality of Mr. Longstaff in subscribing the large sum of £25,000. With abundant funds, there can now be no doubt that the expedition will be well found in every respect, and start upon the arduous undertaking under the highest auspices. We, in Australia, while regretting that we have no part in it, may well feel proud that the grand old land is once more to the fore, and again, after the lapse of so many years, is sending forth in the tracks of the Erebus and Terror an expedition worthy of her name.

REWARDS TO EXPLORERS.

Since the last meeting, your Council, having regard to the valuable services rendered in the cause of geographical science by various explorers, have recommended to the other Branches of the Royal Geographical Society of Australasia that combined action should be taken in the recognition of those services, and that medals should be awarded by the Society in gold, to be called "The Society's Medal," such medals to be issued only with the consent of all its Branches, each Branch bearing its proportion of the cost; and, moreover, that Branches of the Society should be permitted to issue silver or bronze medals bearing the name of the local Branch, for services performed within its boundaries; or for such services as the Branch may consider worthy of such distinction.

THE ABORIGINES.

Some months since, a circular letter was sent to the other Branches of this Society, and also to the Royal Society in each colony, soliciting their early and active co-operation in urging upon their respective Governments the desirableness of immediate action in collecting all available data in respect to its aborigines; and the photographing, on a scientific basis, of typical natives—man and woman—of each tribe.

I am pleased to record that the Government of this province promptly acquiesced in the suggestion, and also promised to render every assistance through its officers, in collecting data, and by photographing such aborigines as may be selected for that purpose.

Dr. E. C. Stirling, C.M.G., has generously undertaken to collect and record the information obtained in South Australia.

During the past year some valuable photographs of the natives have been taken by the Government photolithographer, and by Mr. Max Doenau, of Mount Vivian Station.

An important contribution to this Branch of science has recently appeared in a work entitled "The Native Tribes of Central Australia," by Professor Baldwin Spencer, M.A., and F. J. Gillen, Esq.

Interesting and valuable as are these aspects of Australian aboriginal life, it is well within the scope of such a Society as this, and, I believe, a sacred duty, to go yet further and endeavour to guard the rights and liberties of the few survivors of this unhappy people.

The celebrated orator, Grattan, in a fine burst of eloquence, once declared that wherever the British flag floated, the shackles fell from the limbs of the slave. It was a proud boast, but grave doubts must be entertained as to whether the conduct of the colonial Governments to the aboriginal inhabitants of Australia justify such exalted traditions.

EASTER ISLAND.

I have already referred to Captain Barclay's lecture on Easter Island, but the subject demands more than a passing notice. So little is known here of this interesting island and its numerous and colossal statues, that I think the Society was particularly fortunate in inducing Captain Barclay to deliver his lecture, and so obtain much valuable information. I trust that the time is not far distant when archaeologists will devote more attention to this subject, and unravel the mystery surrounding it.

THE FLINDERS CENTENARY.

As the Centenary of the discovery of South Australia is rapidly approaching, it appears to me that some durable memorial of the event should be erected at the public expense. On 8th April, 1802, Matthew Flinders, the discoverer of the principal portion of South Australia, whilst examining the coast line near Encounter Bay, was startled by the appearance of a strange ship flying French colours. England was then at war with France, and Flinders—fearing that the French vessel had some sinister motive in meeting him in such a distant and unknown sea—cleared his ship, the “Investigator,” for action.

The French vessel (“Le Geographe,”) however, proved to be also on a voyage of discovery, and its captain, Commander Baudin, invited Captain Flinders on board his vessel. After an interchange of compliments and an inspection of the charts of each navigator, Flinders returned to the “Investigator,” and named the locality “Encounter Bay.”

What more fitting memorial to Captain Flinders could be erected than a record engraven on the face of one of the large granite boulders on the summit of the Bluff at Encounter Bay? These rocks witnessed the event, and let the loftiest ones proclaim the fact to future generations. I trust that a movement will shortly be made to give effect to this suggestion, and that on April 8th, 1902 the event will be duly celebrated.

THE LIBRARY.

One hundred and thirty-seven volumes have been added to the Library during the past year.

Mr. David Murray, in moving the adoption of the Report and Balance Sheet, said the Society had not always been in the same prosperous condition that it was now, and it should be of much advantage to the young men and women of the colony. The Society was affiliated with the other Geographical Societies in Australasia, and it was in close communication with similar institutions throughout the world, with the result that much valuable information was disseminated by this means. The Society was now forming a Library, which would ultimately become of great value to the colony. While the work of exploration had never actually ceased it had been hitherto of a spasmodic and intermittent character. He alluded to explorers of the province, and what they had done to increase their knowledge of an unknown country. It would be a good thing if at the Centenary celebration, to which the President had alluded, a more perfect system of exploration was set on foot. Though the Society had

been in existence 15 years, and many gentlemen in the colony had helped it by their wealth, it had not taken such a hold upon the public as it should do in the interests of science. Through the liberality of the late Sir Thomas Elder the Society would be able to provide better accommodation for the library, and for the meetings of the Society, whereby many more might be induced to join its ranks. It was essential that they should learn all about the aborigines before they died out. Dr. Stirling's ethnological services had been very great, and he was still willing to give the Society such information as was at his disposal concerning the aboriginal tribes of Australia. (Cheers.)

Mr. P. McM. Glynn, M.P., seconded the motion, and in doing so said he was sure the presence of the Governor was an evidence of the cosmopolitan spirit which suggested the formation of the Society, and which refused to confine its experiences of the world within the narrow rim of the local horizon. Doubtless, it was a fit subject for pride that the British Empire was so widespread, but our pride should be modified by the consideration that we are only one of several empires, all the rest of which have passed away. Besides, to a large extent our success has been due to the pursuit of the "main chance." But explorations which were personal aggrandisement, justified a higher sense of pride. A perusal of the records of the Royal Geographical Society of England showed that the grit which inspired our forefathers is not lacking still, and this was very gratifying. (Cheers.) He spoke of the work of Sir Martin Conway, in exploring the Andes, and mentioned that Sir Charles Beresford had reported to the British Government that 64 per cent. of the trade done in China was exclusively British. (Cheers.) He wished the Society every success, and hoped that it ever might be said of Australia as Goethe said—

In what lands the sun doth visit
We are free whate'er betide.

—(Cheers.)

The motion was carried.

Mr. W. Griffiths, M.P., moved—"That the following be the officers of the Society for the following year:—President, Mr. Simpson Newland; Vice-President, Sir Langdon Bonython; Council, Messrs. A. T. Magarey, A. W. Dobble, W. P. Auld, G. G. Mayo, R. K. Thomas, C. Sabine, and C. Hope Harris; Secretaries, the Hon. J. L. Parsons and Mr. C. H. Newman; Treasurer, Mr. T. Gill." He pointed out that the influence which the Society exercised over explorations which preceded civilization was very

great. Travellers in Australia knew well the great importance of the Geographical Society. He himself was aware of the vast fields waiting for exploitation, and it was within the scope of the Society to direct and undertake the work. The colony could certainly congratulate itself on the general good treatment extended to the aborigines. (Cheers.)

Mr. F. J. Gillen seconded. He remarked that there was probably no colony in the British Empire which gave greater scope for a Geographical Society than South Australia. Although an immense amount of work had been done recently, there still remained a vast area not yet trodden by the foot of white man. It was reasonable to suppose that much of this contained payable mineral deposits. There were already two fields in the centre practically unknown, which, he ventured to predict, would in the near future prove valuable assets to the colony. So far as ethnological research was concerned, a great deal remained yet to be done before they were in possession of all that was to be learned about the South Australian aborigines. The work of Professor Spencer and himself was really only a starting point, and if the research was to be taken up and done thoroughly it must be done within the next few years. To do it thoroughly would cost a great deal of money—more than the Society could afford—and the only chance of it being accomplished would be through the generosity of wealthy colonists. (Cheers.)

The motion was carried, and Sir Langdon Bonython returned thanks.

On the motion of the Hon. J. L. Parsons, a vote of thanks was passed to the Governor for his presence, and Lord Tennyson briefly replied.

In accordance with the suggestion of Lord Tennyson, the meeting agreed to ask His Excellency to forward the congratulations of this Society to the Society in England.

The proceedings then closed.

P A P E R

READ BEFORE THE

Royal Geographical Society
of Australasia.

TWELFTH SESSION, 1898-9.

SOUTH AUSTRALIAN BRANCH.

The Natives of Central Australia.

By F. J. GILLEN, Esq., S.M.

Read September 23, 1898.

Mr. Gillen, who was cordially received on rising, said in the brief time at his disposal it was only possible to touch more or less lightly upon certain points in regard to the customs of the Central Australian natives, and he would confine his remarks almost entirely to those concerned with the Arunta tribe, which probably consisted of more than 1,000 individuals, and which occupies country between Oodnadatta in the south and Hann's Range, 70 miles north of Alice Springs.

He proceeded—The country is very varied. In the south there are wide open plains, often covered with a layer of closely-set, rounded stones called "gibbers." The scrub is thin and mostly made up of gidyea and mulga, while every here and there a thin line of gum trees marks the course of a stream which is often quite dried up for the greater part of the year. Oodnadatta, at the head of the railway, is about 20 ft. above sea-level, and from this the land gradually rises to the north. In the southern part there are numerous isolated flat-topped hills of no great height, capped with hard desert sandstone, but in the north these traverse the country, a succession of loftier ranges forming altogether the MacDonnell Ranges, which run across from east to west for upwards of 400 miles. The successive ridges are separated by valleys, which vary in width from perhaps 200 yards to upwards of 20 miles. While the ranges and valleys run east and west, the river courses run north and south, and as they take their rise away to the north of the ranges, they have to traverse the latter, through deep, narrow gorges. Every natural feature of any significance—a deep waterhole, a rock hole, an upstanding column of stone, or an old tree—is associated with some tradition or myth. The climatic conditions are such that the seasons are simply divided into two, a long and often very prolonged dry season and a

short, wet one. The contrast in the nature of the country during each period cannot be realised unless it has been actually seen. In the dry season, everything is parched and silent; the watercourses are absolutely empty, except perhaps for a few scattered waterholes in the gaps amongst the ranges, and hundreds of miles become impassable by reason of drought. In the wet season—and the rainfall may only last a very short time—the water pours in torrents down the smooth, rocky sides of the ranges, and, filling the watercourses, flows away to the south. For a short time the river beds are too small to hold the body of water, which carries with it trees and debris of all kinds, and for a few days, country previously impassable by reason of drought, is similarly so from flood. Animals of all kinds appear in countless numbers as if by magic, and the whole country is green with grass and bright with flowers. Soon everything becomes changed, and it is only those animals and plants which have grown rapidly enough to reach a certain size that can survive. All the rest perish. It is upon a precarious rainfall such as this that the natives depend for their supply of food and water, and though they can subsist—in fact, sometimes they have to do so—on what would mean actual starvation to the average white man, and can find a water supply where the white man would die of thirst, yet, in times of drought, their life is not a pleasant one. With these few preliminary remarks, which will serve to give you some idea of the natural surroundings of the natives, we may proceed to describe certain of the more important points concerned with the organisation and customs of the tribe, though, it will, of course, be impossible to do more than give the broadest outlines of them. The whole district occupied by the Arunta tribe is divided into a very large number of areas of various sizes, some, perhaps, only occupying half a square mile, others 100 square miles, the boundaries of which are well known to the natives, and each of which is regarded as being owned by the local group of natives. Each of these local groups has its head man, but in the whole tribe there is no individual to whom the word Chief or King can be correctly applied, and the power exercised by the head man is of a very vague description. His chief duty is to act as custodian of what may be called the sacred storehouse, in which are carefully kept such objects as the “bull-roarers,” which belong to the group, and he has also to preside at certain sacred ceremonies performed by the members of the local group. Each of these local groups is called by the name of some material object such as an animal or plant. Speaking generally, the members of each group spend most of their time in the locality which they own, camping at spots such as waterholes, where food

is most easily obtained. To a certain extent, also, they wander about among neighbouring groups. The only shelter which they have is a lean-to of bushes. In their natural condition they go about perfectly naked, in winter and summer alike, never making use of the skins of the kangaroos and wallabies which are often obtained. Each man wears a girdle of hair-string, made most often of the hair of his mother-in-law; but beyond this and a few head bands, necklets, and armlets, neither men nor women wear any clothing, though they gladly avail themselves now of the Government blanket, or the cast off clothing of the white man.

TRIBAL ORGANISATIONS.

In, at all events, the great majority of Australian tribes, there is a very definite organisation, which is often of so complicated a character that, though the natives understand it clearly enough, it is most difficult for the white man to grasp. One has to throw on one side all ideas of organisation and relationship, as existing amongst ourselves. The members of all Australian tribes—or of almost all—are divided up into two or more groups, to which distinct names are given, and the organisation is such that the men of one particular group may only marry the women of another particular group, while the children belong, in some cases, to the mother's group, and in others to the father's group. In Central Australia there are examples of both these systems, and in explanation brief reference may be made to the Urapunna tribe, in which descent is counted in the mother's line, and the Arunta, in which descent is counted on the father's line.

In the simpler of the two, the Urapunna, descent can be easily represented by a diagram. The whole tribe is divided into two moieties, one of which is called Mattharrie, and the Kirarawa, and the hard and fast rule, the breaking of which is punished most severely, probably by death, is that a Mattharrie man must marry a Kirarawa woman, and vice versa. Further still, if a Mattharrie man marries a Kirarawa woman, the children are Kirarawa, just as their mother is. Nor is this all. Further examination into the two groups shows that each one includes a large number of smaller groups of men and women, who belong to what is called a totem. A totem is the name given to some natural object, which gave its name to a group of individuals between whom and the object in question there is supposed to exist some special relationship. There are very few objects by which the native is surrounded, animate or inanimate, which do not give their name to some totemic group. Thus, for example, there are a group of individuals belonging to the emu totem, another to the frog, another to the wild cat, another to the mulga, and so on. Now, of these totems

a certain number are confined to the Mattharrie half, and the other to the Kirarawa. Further still, the totem is intimately concerned with the question of marriage. A Mattharrie man, for example, may only marry a Kirarawa woman of a particular totem, and their children belong to the Kirarawa class, and to the totem of the mother. In the Arunta tribe, we find at once that in the southern part of the tribe, where the latter is in contact with the Urapunna, that instead of there being two there are four main groups in the tribe. The names of these are Panunga, Bulthara, Purula, and Kuwara. Though there are four groups, yet in reality it can be clearly seen that the four are only subdivisions of the two original ones. Thus the Bulthara and Panunga camp together, separated by some natural feature, such as a creek or rising ground, from the other half, the Purula and Kuwara. A Panunga man must marry a Purula woman, and the children are Bulthara, that is, they pass into the father's half of the tribe, but into the group to which he does not belong. In other words, in the Arunta tribe the descent is counted in the father's line. As compared with the Urapunna tribe there is one noticeable difference, and this is that the totem does not in any way regulate marriage. At the same time every individual has his or her own totem name, but this is not of necessity that of either the father or mother. In any particular family, for example, that the father may be an emu, the mother a wild cat, and of their children one may be a "witchetty grub," the other a frog, and the other a kangaroo. In another family the mother and father may both be "witchetty grubs," and of their three children two may belong to the same totem and the third to the frog.

TRADITIONS OF THE TRIBES.

To explain how each individual acquires a totem it is necessary to refer briefly to certain traditions of the tribe. According to these the ancestors, who lived in the far away past, to which the name of Alcheringa is given, were the transformations of animals and plants; and naturally, when transformed into human beings, each of them bore the name of the animal or plant from which he or she had been transformed into a human being. These mythical ancestors are supposed to have travelled over the country; that is, a group of wild cat people travelled along certain lines, a group of emu people travelled along another line, a group of frog people travelled along another, and so on. Now, suppose we take a special group of these mythical ancestors, say the wild cats. As they travelled across the country now inhabited by the Arunta tribe, they camped at certain definite spots, and at these spots it is supposed that, as the natives say, certain numbers of

the party went into the ground. Each individual carried with him (or her) as the case might be, one of the sacred stones, or sticks, "Churinga," which are usually called bull-roarers. With this bull-roarer was associated his spirit, and so at present the whole country occupied by the Arunta is dotted over with spots which are, so to speak, inhabited by the spirits of the ancestors of the tribe. In one spot we have a number of wild cat spirits; in another, a number of emu spirits, and so on. The belief at the present day is that when a child is born, it is simply a reincarnation of one of these spirits, so if a child is born at a spot at which in the mythical past, say, the wild cat men camped, and left behind them wild cat spirits, then of necessity that child is the reincarnation of a wild cat man or woman, whatever its father or mother may have been. When the child is born, the spirit whose reincarnation it is, is supposed to drop the "bull-roarer," and the grandfather and father of the child, with perhaps one or two other men, actually go in search of it, and when found it is taken to the sacred storehouse of the local group to which the spirit, and therefore the child, belongs, and in which all the bull-roarers are deposited. When the Alcheringa ancestors died there arose some natural object, such as a rock or a tree, to mark the spot, and henceforth this is associated with the spirit which is supposed to inhabit it. It is spoken of as the spirit's Nanja, and in the same way the bull-roarer, with which the spirit is associated, is, when the child is born, the child's own special "bull-roarer," or, as the natives call it, its "Charinga Nanja." When in the far past time a group of individuals belonging to a particular totem camped at any particular spot certain ceremonies were henceforth associated with that spot and with the one totem, the members of which camped there. As an example of these sacred ceremonies, which are quite distinct from the ordinary dances or corroborees of the natives, which may be witnessed and taken part in by any member of the tribe, men, women, and children, may be taken one which is associated with the kangaroo totem of a spot called Undiara. At this spot in the far away past, a party of kangaroo men killed a kangaroo, and dragged its body to the base of a range of hills, and placed it in a small cave. A great stone at once arose to mark the spot, and into this stone there entered the spirit part of the kangaroo, for the natives imagine that the animal, just as well as its human representative, has a spirit part. At a later time a large number of kangaroos came to this spot and died, leaving their spirits in the stone. In this particular ceremony there was made what the natives call a nurtunja, that is, a pole consisting of a number of spears lashed together. The spears are

then enclosed in a casing of grass stalks, and outside these human hair string is wound, and by means of blood drawn from the arms of men who are taking part in the ceremony birds' down is affixed. When the pole has been made a number of bull-roarers are hung on to it, and then it is planted in the ground. A man who is supposed to represent the ancient ancestors, who was specially associated with the kangaroo, is decorated profusely with bands of birds' down coloured with red and yellow ochre, and sits at the base of the pole, while the other men who are taking part in the ceremony run round and round the pole shouting, "Wah! wah! wah!" at the top of their voices. Each totem has numerous ceremonies of this kind associated with it, and these ceremonies, each of which is definitely connected with some special spot, and with some special ancestor of the tribe, may only be witnessed and taken part in by men who are fully initiated. The nature of many of these ceremonies can be seen from the photographs lent by Dr. Stirling.

CEREMONIES OF INITIATION.

The ceremonies of initiation are :—1. Throwing up the boy. 2. Circumcision. 3. Sub-incision. 4. Engwura. Of these ceremonies the first three may be regarded as essential, and after passing through them a man is admitted to the sacred secrets of the tribe, and may also marry. The fourth ceremony, called the Engwura, is of a very different nature. A man does not usually pass through this till he is say 25, and he may be even 40 years of age. The whole ceremony occupies from three to four months, and its objects are evidently—1. To teach the younger men the traditions concerned with the tribal ancestors. 2. To bring them under the control of the older men, and to test their endurance. A special ground is prepared near to which the women may not venture, and on this, morning, noon, and night, sacred ceremonies, such as have been described are performed. Towards the end of this Engwura, however, the young men are taken out daily into the bush, where they are supposed to procure game which they bring in to the older men, under whose control they are, and finally, they are made to pass through certain fire ordeals. The first of these consists in the young men being taken at morning and evening, or both, to the women's camp, where the latter make a fire and then throw burning bushes on to the men, who shield themselves as best they may with shields and boughs of scrub. A still more serious and really trying ordeal must be passed through two or three times towards the end of the Engwura. On the particular occasion on which I witnessed it the young men were taken out to a lonely spot amongst the rocky ranges, and here the

old men in charge of them built a large fire. When nothing was left but red hot embers then small branches of green bushes were placed on, and in the stifling smoke and heat the young men were made to lie down in batches on the smouldering bushes at full length till they were permitted by the old men to arise. It was a most trying ordeal, as the day itself was very hot, the thermometer registering 156 degrees in the sun and 110 degrees in the shade. As if the young men had not been tried severely enough, the old men, just as they were getting ready to leave the grounds, ordered the fire to be restoked and put all the young men on it once more. The last night of the Engwura was spent in sitting around the base of the sacred pole, some 20 ft. in height, while the old men painted designs on the backs of the young men. These designs are very characteristic things in the Arunta tribe, and they are associated with the various totems, each totem having a series of designs which are especially associated with it. The nature of these designs, which are entirely of a geometrical and conventional nature, can be seen in photographs. They are drawn in red and yellow ochre or wad, a manganese ore, which gives a grey-blue colour, white pipe-clay, and birds' down. All that night the women were busy in their camps, the Panunga and Balthara on the one hand and the Purula and Kuwara on the other, digging out a shallow hole in which they made a fire. In the early morning, before sunrise, the painting of the young men was complete, and then, led by the older men, they were taken across to the women's camp and placed one by one upon the fire, which had been smothered with green bushes. A man who has passed through the Engwura may not speak to the old man who has been in charge of him until he has presented the latter with an offering of food. Indeed, in one way or another, matters are so arranged that it is often necessary for the younger men to present food to the older men. On this occasion the old man performs some sacred ceremony, and then touches the mouth of the young man with some sacred object used during the ceremony, thereby releasing him from the ban of silence.

THE SUBJECT OF MAGIC.

Magic plays a very large part in the lives of the natives. Like other savages, the Australian has no idea of natural death or even illness, but always attributes them to the evil magic of some enemy. Before the advent of the white man the death of one man always meant the killing, sooner or later, of another. During the performance of the Engwura, for example, word was brought into the camp that a celebrated old medicine-man had died away out in the west, and at the same time we were gravely assured that

he had been killed by the evil magic of a man whose name was given. According to what the natives say, when a man is to be killed in revenge for his having killed or done harm to someone else, a man goes out for the purpose, to whom the name of Kurdaitcha is given. This man is decorated with down, wears on his feet the emu leather shoes which are usually called Kurdaitcha shoes, and carries with him a sacred stone bull-roarer. Accompanied sometimes by a medicine man, he is supposed to creep upon his enemy, and spear him unawares. The duty of the medicine man is to close up the wound, and by means of magic to render the victim unconscious of what has taken place. When the latter recovers, he returns to camp, but sooner or later, he sickens or dies. There is little doubt but that the whole thing is a myth. A blackfellow will tell you that he has gone Kurdaitcha, while, all the time, he knows that he has not done so, and yet firmly believes that some other blackfellow really has. That the shoes are ever worn for the purpose it is very difficult to believe. Over the hard ground of the interior they are about as unsuited to travel as anything could possibly be, and to anyone who knows the natives the idea that their object is to prevent tracking is absurd. The slightest disturbance of a stick or a stone is quite enough to show the average blackfellow, not only that someone has passed, but the direction in which he has travelled. In fact, the Kurdaitcha custom may be regarded as a myth. The most usual way of harming anyone is by means of a pointing-bone or suck. These pointing-sticks vary much in shape and size; but it is supposed that by pointing them in the direction of the individual whom it is desired to harm, that thereby an evil influence is projected from the stick, which has been "sung" over, and so endowed with evil magic, into the enemy, who, unless, saved by the skill of the medicine man, will inevitably die. One of the most feared of these is a short stick with a barb at one end, which is supposed to be inserted in men's bodies by malicious spirits. In the body it causes great pain, which is increased by the spirit pulling every now and then at the end of an invisible cord which is attached to it. This cord, however, can be sometimes seen by a very able medicine man, who then cuts it, and after long work may succeed in extracting the stick in fragments; or, if he be very high in the profession, he may even bring it out whole, much to the awe and wonderment of the onlookers, who have a perfect belief in the powers of the medicine man. While some of these magic objects are made simply to harm other people, there are others of them which are looked upon as endowing their possessor with special powers. Of this class, by

far the most important is a girdle, called a "kirra urkaa," the special feature of which is that it is made out of hair cut from the head of a dead man. This is supposed to endow its wearer with all the attributes of the dead man, to give him accuracy of aim, and to destroy the aim of his enemy, and even sometimes to render him invisible.

METHOD OF OBTAINING WIVES.

Associated with magic also are various methods of obtaining wives, but it is well first to notice the ordinary method. In many more less popular works the Australian native is represented as lying in wait to knock on the head some woman whom he desires to capture. Now, in the central tribes marriage by capture is a very rare method. The most customary method is as follows:—Supposing that there is a boy and girl, perhaps they may only be each of them a few months old, and the relationship between the two is such that the girl belongs to the group of the tribe to which the mother of the boy's future wife must belong. That is, she stands to him in the relationship of mother-in-law, for in the Arunta, as in all the other Australian tribes, all relationships are concerned with groups of individuals. Thus, if a man is a Panunga, his wife must be a Purula woman, and the relationship between them is called unawa, a term which includes the English terms husband and wife. Now, not only does he call this particular woman unawa, but he calls every woman belonging to her group, that is every woman whom he might lawfully marry, by the same name, just as his wife calls every man belonging to the group to which her husband belongs by the name of unawa. All women whose daughters it is lawful for him to marry he calls his mother-in-law. However, to return to one particular case, if a father is anxious to get a wife assigned to his son when the latter shall be grown up, he goes to some man who has a daughter who stands in the relationship of possible mother-in-law to his son. That is the latter and his future mother-in-law are of approximately the same age. The two men arrange matters, and in future years, if the female child when grown up and married has a daughter, then her eldest daughter becomes the wife of the boy. In this way is established between a man and a woman the relationship of "tualcha-mara," that is, if the child is a man he is entitled to the eldest daughter of his "tualcha-mara" woman. A curious feature concerned with this relationship is that he may never speak to his mother-in-law, nor she to him, and she has to periodically present him with hair cut from her head with which to manufacture a waist girdle. On the other hand he has to keep on good terms with his father-in-law, not

only with the particular one whose daughter he marries, but with all his tribal fathers-in-law, that is, the man whose daughters he might legally marry. Any one of them, if the husband infringe tribal custom, has the power to take away the wife and present her to some other man to whom he is father-in-law. A not unimportant part of the relationship between a father-in-law and son-in-law consists in the fact that the latter has to provide the former with food; in fact, as already pointed out, things are arranged so that the older men have the best of everything. Apart from the legal and normal method of obtaining a wife, there are other methods associated with magic, but in all cases it must be remembered that whether a man obtain his wife by the normal method or by means of magic, he must always marry a woman who belongs to one particular group. Should he offend against this law, then in the normal state of the tribe it is almost certain that he and the woman too would be put to death. A favourite method of obtaining a wife is by means of the use of a small bull-roarer called a "Nama Twinna" (from the words nama, grass, and twinna, to hit) in allusion to the fact that when swinging this bull-roarer it is first of all hit on the ground. Having furnished himself with one of these bull-roarers the man, with perhaps two or three of his friends, will repair at night time to a secluded spot, and after some time has been spent in the singing of songs, the burden of which is, that the sound shall go straight to the woman and induce her to comply with its summons, the man goes a little distance away from the others and swings the bull-roarer. The sound is supposed to be carried to the ears of the woman, however far she may be, and sooner or later she is sure to leave her present husband and come to the man who swung the bull-roarer, who then, with the aid of his friends, is justified in keeping her. Another method is carried out by means of a pearl-shell ornament called "Lonkalonka," which is worn suspended from the waistband. When a man wishes to charm a particular woman he takes one of these ornaments, and attaching it to a stick fixed in the ground he sings chants, the burden of which is an invitation to the lightning to come and reside in the shell. At night time he wears the shell on the corroboree ground as he dances, and then the woman alone sees the lightning flashing from it, and she becomes, as the natives say, much infatuated, and subsequently elopes with the man. In either case the game is rather a risky one, as the chances are that the original owner will resent the elopement, and follow up the man and woman, both of whom may then be killed; but, if they succeed in getting away safely to another and distant and friendly group, then, after a lapse

of some time, the aggressor may have to subject himself to an ordeal in which he has to defend himself as best he may from the knife and spear of the man whose wife he has taken without retaliating, while the woman is sure to come in for some rough treatment.

CONCLUSION.

These remarks are only intended to give some outline of certain features in connection with the customs of the tribes. In the course of a short lecture it is impossible to touch upon more than a few subjects, and even these can only be dealt with in a most cursory manner. It cannot be too strongly pointed out that the time is rapidly approaching when the native tribes of Australia will have forsaken entirely their old customs. No sooner do they come in contact with the white man than the younger men break away from the control of the older men, who, in the normal condition of the tribe are all-powerful. It is only the older men who are really acquainted with the ancient customs and traditions, and these they will not reveal to the younger ones who have broken away from tribal rules, and refuse to be governed by what to the old men are laws rendered sacred, because they have been handed down from the far past. It is to be hoped that before it be too late there may be placed on record, for the use of future generations, every detail which it is yet possible to secure with regard to tribes now rapidly disappearing from our midst, carrying away with them the traces still lingering in the world of the most primitive of mankind.

There is really no comprehensive work on the Australian race. Our opportunities are unique, and we should have, before it be too late, an imperishable record of this vanishing people, such as that on the native races of India. Too little attention is paid to the fostering of scientific investigation in these southern lands of ours. The best scientific work about Australia has been done by foreign scientists; for instance, Semon's great work on the Platypus, Echidna, and Australian lung fish *Cerotodus*. This man was sent here to do work by a foreign Government, whereas here in Australia all scientific investigation is left to the private individual, who often finds it difficult to obtain leave, and if he can obtain leave, he has to pay his own expenses. Only a year or two ago Dr. Dahl was sent out to the Northern Territory for two years by the University of Christiania. Lumholz was also sent out by the same university, and at the present time a German scientist, Dr. Eylmann, is engaged in scientific exploration in Central Australia. We have here in Australia men fully com-

petent, if they had the opportunity to conduct all branches of scientific investigation. These men should receive every encouragement and assistance, so that the credit of scientific investigation of Australian forms should remain with our own people.

PROCEEDINGS
OF THE
Royal Geographical Society of Australasia.
(SOUTH AUSTRALIAN BRANCH.)

THIRTEENTH SESSION, 1899-1900.

COUNCIL MEETINGS.

June 30, 1899.

Present—Nine.

Resolved—“That the Council expresses its appreciation of the valuable services which Mr. Harris (having retired from the position of Honorary Secretary) has rendered to the Society and to the Geographical Society, and that the motion be recorded in the minutes.”

A letter was read from Mr. D. Sinclair, forwarding a photograph of the remains of a chimney built by J. McDouall Stuart at Welby Station, near Port Lincoln. The gift to be acknowledged with thanks.

August 23, 1899.

Present—Six.

The Assistant-Secretary reported having forwarded to His Excellency the Governor (as Patron) Vols. I. and II. of the Society's Proceedings and copies of the Journals of the Tietkins, Elder, and Horn Expeditions, and that the same have been acknowledged.

September 25, 1899.

Present—Seven.

A letter was read from Captain Wallington (Private Secretary to His Excellency the Governor) forwarding a communication from

Sir Clements Markham, the President of the Royal Geographical Society, London acknowledging the congratulatory resolution passed at the Annual Meeting in June last. The letter from Sir Clements Markham is as follows :—

Lanovick, Norway,
July 29, 1899.

Dear Lord Tennyson—

I have to acknowledge the receipt of your letter of June 20th, enclosing a report of the meeting of the South Australian Branch of the Royal Geographical Society of Australasia, at which a resolution was passed in honour of the President and Council of the Royal Geographical Society of London. I have to thank you very cordially for your letter, and to request you will kindly convey to the South Australian Geographical Society the warm acknowledgment of myself and of my Council for the friendly resolution that the Society has passed.

Ever faithfully yours,

CLEMENTS MARKHAM.

A letter was received from Mr. L. A. Wells, forwarding the map and Report of the Proceedings in connection with the exploration of North West Australia.

Resolved—"That Mr. Wells be written to, thanking him for his contribution, and that the Map and Report be included in Vol. III. of the Society's Proceedings now about to be published in recognition of the valuable services which Mr. Wells has rendered to Geographical Science."

October 27, 1899.

Present—Eight.

Only formal business was transacted.

March 16, 1900.

Present—Six.

Resolved—"That the Hon. the Premier of Western Australia be informed that Mr. L. A. Wells, had given a full Report and Map of his Travels, and asked whether his Government would publish the same and supply this Society with Copies."

April 30, 1900.

Present—Five.

A telegram from Mr. C. E. Borchgrevink, announcing his safe return from the Antarctic Ocean, and the Vice-President's con-

gratulatory reply were read, and also a letter of acknowledgment from Mr. Borchgrevink of the congratulation.

A reply was received from the Premier of Western Australia, agreeing to publish the Journal of Mr. L. A. Wells, the Leader of the Calvert Expedition.

May 21, 1900,

Present—Seven.

Only formal business was transacted.

ATTENDANCE ROLL.

SESSION 1899-1900.

COUNCIL MEETINGS HELD, 7

*Simpson Newland, J.P.	4
Sir Langdon Bonython, J.P.	2
A. T. Magarey	2
A. W. Dobbie, J.P.	3
W. P. Auld	5
G. G. Mayo	—
C. Hope Harris	4
R. K. Thomas, J.P.	3
E. H. Newman, I/L.B.	7
Thomas Gill, J.P.	7
Hon. J. Langdon Parsons, M.L.C.	6
C. Sabine	5

* Absent in England part of the Session.

Royal Geographical Society of South Australia.

SOUTH AUSTRALIAN BRANCH.

ANNUAL MEETING.

The Annual Meeting of this Society was held on Friday afternoon, June 8, 1900, in the Society's Rooms, 3 State Bank Chambers, Pirie Street. The chair was taken by Simpson Newland, Esq., President.

The minutes of the last Annual Meeting were read and confirmed. Mr. T. Gill (Hon. Treasurer) presented the Balance Sheet, which showed that the total receipts for 1899/1900 were £166 15s. 9d., and the expenses £162 3s. 4d.; leaving a balance of £4 12s. 5d. The assets of the Society were valued at £2,247 16s. 5d.

The President, Simpson Newland, Esq., J.P., then delivered his Address, as follows :—

Since the last Report, dated June 16, 1899, your Council has held seven meetings, and during that period six ordinary members and two life members have been added to the Society. Three papers have been read during the past session, comprising a lecture on August 11, by Mr. Danl. Matthews "On the Upper Murray Tribes ;" on October 25, by Walter Griffiths, Esq., M.P., on "Australia twice crossed ;" and on November 20, Dr. Eitel, M.A., Ph.D., on Chinese Notions of Geography and Geomancy." The two lectures last mentioned were delivered at the Stow Lecture Hall, Flinders Street, which in the absence of any suitable room of our own, has been secured for future lectures. Your Council has also since the last annual meeting arranged for a new and more suitable office in the State Bank Buildings, in Pirie Street,

to which they removed in July last ; its central position has been found a great convenience to the members.

POLAR EXPLORATION.

Allusion was made in the last report to the expedition fitted out by Sir George Newnes, under the leadership of Mr. Borchgrevink, in the "Southern Cross," which left Hobart for Cape Adair on December 19th, 1898. Mr. Borchgrevink reports that this expedition has been a signal success in traversing hitherto unknown ground and in locating the position of the Magnetic South Pole. The publication of details will be awaited with much interest.

A hearty welcome was extended to Mr. Borchgrevink and his party, both at Hobart and in Melbourne, and it was a matter of regret that his arrangements precluded a similar privilege to our Society in South Australia. We were, however, favoured by Mr. Borchgrevink—immediately after his arrival off Stewart Island, New Zealand, on Sunday night, April 1st—with a telegram, as follows :—"The object of the Expedition is carried out. South Magnetic Pole located. Furthest south by sledge, 78.50 deg. Zoologist Hansen dead. Southern Cross will call at Port Adelaide on homeward voyage. All well on board." In the absence of Mr. Newland, Sir Langdon Bonython, our-Vice-President wired as follows :—"Hearty congratulations splendid result of Expedition, surpassing all previous explorers. Deeply regret Hansen's death. Glad other members of the party in good health, and that "Southern Cross" will call at Port Adelaide."

Subsequently, some members of the Council had the pleasure of interviewing the Doctor of the Expedition, who called at Adelaide whilst travelling by the mail steamer, on Thursday, May 17th, when they offered to Dr. Herluf Kloostad their hearty congratulations at the triumphant results attending the exploration.

Active preparations are now in progress for the dispatch in July, 1901, by the Royal Geographical Society of Great Britain, and by the German and Norwegian Governments, of three distinct expeditions, to make a full investigation of the Southern polar regions, including also meteorological observations.

The extreme advantages of three such expeditions working simultaneously cannot be overestimated ; fuller information and more extended observations at different points will be obtained than would be possible if undertaken by one expedition only. The spirit of rivalry that is sure to be engendered by this arrangement will no doubt have a tendency to stimulate the officers of the various expeditions to thoroughly perform their duties, and the advantages to science by the combined action will be incalculable.

ANDREE'S NORTH POLAR EXPLORATIONS.

The Bulletin of the "Societe de Geographe," Paris, of March last, contains the following paragraph, which will be read with deep interest:—"On the 11th September, 1899, a seal hunter discovered on the northern coast of King Charles' Island, East Spitsberg, a buoy belonging to the Andree Expedition. Reporting the discovery at Stockholm, it was recognised as being a buoy of the special dimensions and kind which the aeronauts intended to launch when passing the North Pole. A most careful examination of the buoy did not reveal the presence of any document, so that the course followed by the balloon after the 13th July, 1897—the date of the last authentic message—as well as the fate of the expedition are reduced to a mere hypothesis.

A minute examination of the buoy by Monsieur Lagerheim has revealed the presence of a number of vegetable and animal substances. In a central tube of the buoy were discovered eight pieces of moss or seaweed, but we cannot draw any conclusion from their presence as to the course of the buoy. In the polar regions fragments of these cryptograms abound amongst the debris which the waves deposits on the coast. It is very probable that during the period the buoy was stranded the moss was deposited on the buoy. In these deposits were discovered sixteen different kinds of algae and thirty-five varieties of diatoms, and the fauna is represented by portions of a species of sponge related to the *Ascetta Coriacea*. By the position which the buoy occupied on King Charles' Island, Monsieur Lagerheim thinks it must have been stranded by a floe of ice, and during the winter of 1898-1899. Of the thirty-five species of *Diatomacea* which were discovered on this waif of the sea, four are found in salt water, and two belong to those which live in fresh or in brackish water. Most of these diatoms are known on the coasts of Spitzberg and Greenland, and twenty-nine species are found in the sea at Kara and on the coast of Finmark, Norway. If the diatoms which adhered to the buoy, concludes Monsieur Lagerheim, shortly after it was thrown into the sea, were not covered or replaced by others, this feature indicates that the buoy did not pass the neighbourhood of a large river and did not come from the eastern portion of the north coast of Siberia. Monsieur Nahorst, in a scientific discussion, shows, on the other hand, that the buoy was thrown into the sea south of Latitude 82 deg."

PROTECTION OF BIRDS, &c.

At our Annual Meeting held in June, 1898, your Council expressed a hope that some effective legislation should speedily be

put into operation, with the view of obtaining protection for, and disseminating knowledge of, the useful birds and insects of the colony. It is gratifying to know that a Bill dealing with this matter was drawn and laid before Parliament at the close of last Session by the Hon. Thos. Playford, when it was read the first time. It is earnestly hoped that this Bill will be re-introduced in the coming Session, and that it will be approved and become law.

THE NORTHERN TERRITORY.

As the difficulties which threaten to delay the passing of the Commonwealth Bill by the Imperial Parliament appear to be removed, it is fitting that some reference should be made to the Northern Territory. Clause 121 of the Commonwealth Bill provides that "The Parliament may make laws for the government of any Territory surrendered by any State to and accepted by the Commonwealth. It may be assumed that South Australia will be prepared to surrender the Northern Territory to the Commonwealth, and it may be confidently anticipated that the Commonwealth Parliament will accept it, on terms equitable to South Australia. It was, of course, a hazardous experiment for a young and scantily populated colony such as South Australia was in 1864, to undertake to establish a colony in the tropics, and the stocking and development of 523,620 square miles of country. It is not surprising, however much it may be regretted, that the results of gallant, if somewhat spasmodic, efforts have not been successful either from the financial or the settlement points of view.

Much good exploring work has been done by the parties under Messrs. David Lindsay, F.R.G.S., C. Winnecke, F.R.G.S., E. Favenc, F.R.G.S., W. H. Tietkins, F.R.G.S., the Hon. D. Carnegie, and Captain Carrington, and by the journeys of the late Rev. J. E. Tenison-Woods, F.R.G.S., and Messrs. H. Y. L. Brown, F.G.S., Government Geologist, and J. V. Parkes, late Inspector of Mines; and much valuable information has been collected by the Government Residents and embodied in their reports. But as the Elder Scientific, the Horn Scientific, and Calvert Exploring Expeditions did not accomplish the work originally contemplated by the late Sir Thomas Elder, G.C.M.G., several large areas in the Northern Territory remain unexplored.

Mr. H. Y. L. Brown, in his report on "Explorations in the Northern Territory," 1885, says:—"An exploration of the unknown area lying to the west of the telegraph line, between Tennant's and Barrow's Creeks and the Western Australian border, would add considerably to what is known of the geography and geology of the Northern Territory, and lead to the discovery of country likely to prove auriferous."

It is earnestly to be hoped that the arrangements necessary for the transfer of the Northern Territory to the Commonwealth may be completed at an early date, so that the remaining work of exploration may be undertaken, and the great mineral, pastoral, and agricultural resources of the Northern Territory may be developed.

WESTERN AUSTRALIAN EXPLORATION.

Volume III. of our Proceedings published last year, contained an abstract of the Journal of Mr. L. A. Wells, leader of the Calvert Expedition. In March last, your Council received the Journal of the Expedition from Mr. Wells, which has since been forwarded to the Government of Western Australia, who have kindly agreed to publish it and furnish this Society with copies.

HORSE BREEDING.

As one of the objects of this Society is the furtherance of Australian commercial progress, attention may well be directed to one branch of industry which, from recent African developments, is likely to come under prominent notice.

Horse breeding can be carried on within the province of South Australia with more satisfactory results than in any other part of this continent, as regards the stamp of hardy animals required for active, arduous service on the battlefield, or for transport of ammunition and stores over a rugged, bare, or inhospitable country. The climate of this province and the nature of the feed and herbage in those northern districts, where bush horses are profitably reared, and where stock has to travel long distances over rough country for pasturage far from natural waters, give them constitution and hardiness capable of undergoing long journeys with a minimum amount of sustenance.

This has been abundantly proved by the experience of our Army in South Africa ; and although for many years an export trade has been carried on with India, our pastoralists should extend their operations by breeding on country so admirably adapted for the purpose, a class of horses which will be always in demand for foreign parts, and yield profitable returns if carefully managed and attended to.

THE CENTENARY OF SOUTH AUSTRALIAN EXPLORATION.

The time is rapidly approaching for initiatory steps to be taken for commemorating the Centenary of Captain Flinders' visit to South Australia.

Mount Lofty was named by Flinders on 23rd March, 1802, and Encounter Bay, on 9th April, 1802. At both places some lasting

memorial should be erected and duly celebrated. Public subscriptions for this purpose will be invited from our patriotic colonists.

One hundred and ten volumes have been added to the Library during the past year. We have now a valuable collection of Geographical and Scientific literature, and members of the Society are cordially invited to attend our room at the State Bank building whenever so disposed. The room is open to members from 9.30 a.m. to 4 p.m. daily except Saturdays.

Mr. H. A. Parsons moved the adoption of the Report and Balance Sheet. He was glad to know that the past year had been such an active one. The heroism and arduous labours of explorers had revealed new worlds and new treasures in the polar regions, and he hoped that even more encouraging results would be obtained in the year to come. The Society had reason to feel grateful for the fact that something practical had followed their efforts to protect the bird life of South Australia, and he trusted that the Bill which had been before Parliament would become law. (Hear, hear.) He took a personal interest in the Northern Territory, and there was no doubt that this great country had not received the attention it deserved. They all looked for great benefits from federation in this direction. He took that opportunity of welcoming back to Adelaide Mr. Newland, whose health had been improved by the trip to Europe, and he introduced to the meeting Dr. Alexander, of Dunedin, a member of the Royal Geographical Society.

Mr. C. Sabine seconded the motion, which was carried.

On the motion of Mr. W. Strawbridge the following officers were elected for the ensuing year:—President, Mr. R. Kyffin Thomas; Vice-President, Sir J. Langdon Bonython; Council, Messrs. S. Newland, W. P. Auld, A. W. Dobbie, C. H. Harris, W. H. Phillipps, J. A. Johnson, and C. L. Whitham, and Mr. A. T. Magarey to be an honorary member; Secretaries, Hon. J. L. Parsons and Mr. E. H. Newman; Treasurer, Mr. T. Gill; Auditors, Messrs. L. H. Sholl and F. W. Giles.

Mr. C. L. Whitham moved a vote of thanks to the retiring officers. They had done well to secure the present location for the Society's rooms, and if their record of work contained no more than the arranging for Dr. Eitel's lecture, mentioned in the Report, they were to be congratulated. Personally, he took a humble part in the work of the Society, but for eight or nine months his department had been engaged in preparing a new map of Australia, for use in the public schools, bringing up to date the railways and

goldmining districts. (Hear, hear.) The map at present in use was issued twelve years ago.

Mr. A. A. Simpson seconded the motion, which was carried.

On the proposition of Mr. Newland, seconded by Mr. Thomas, it was decided to forward the condolences of the Society to Mr. A. T. Magarey in his illness. Hearty wishes were expressed for the future of Mr. C. Sabine, who is about to leave South Australia to settle in South Africa.

Mr. R. Kyffin Thomas, in returning thanks on behalf of the newly elected officers, congratulated Mr. Newland upon his safe return to South Australia. During his absence from the colony Mr. Newland had worked for the Society, and he was sorry that he did not see his way clear to again fill the Presidential chair. It was with great diffidence that he (Mr. Thomas) took up the mantle of the three eminent gentlemen who had preceded him. During the fifteen years of the Society's existence, there had been three Presidents. For the first nine years, its destinies were guided by Sir Samuel Davenport, whose knowledge of colonial affairs was unique. Then, for a period all too short, the late Mr. G. W. Goyder, was the President. The latter had a wonderful knowledge of the geographical and other features of South Australia, and it was a matter for regret that his health did not allow him to occupy the position longer. Mr. Newland had been President for five years, and the Society was indebted to him for much valuable work. He regretted that they were to lose Mr. Sabine, who was about to sail for South Africa, and was therefore not a candidate for re-election to the Council.

Mr. Newland remarked that he retired at his own wish because he did not believe in the term of office being too long. Anything he had done for the Society had been a labour of love. He wished Mr. Sabine a happy and prosperous career in South Africa.

Mr. Sabine thanked the members for their good wishes. As a member of the Society, the distance between Africa and Australia did not trouble him, and he hoped to return to Adelaide some time in the future.

P A P E R

READ BEFORE THE

Royal Geographical Society
of Australasia.

THIRTEENTH SESSION, 1899-1900.

SOUTH AUSTRALIAN BRANCH.

Native Tribes of the Upper Murray.

By DANIEL MATTHEWS.

Director and Founder of the Maloga Mission.

Read August 11, 1899.

In the early part of 1864, when residing at Echuca, Victoria, I was brought into contact with a considerable number of natives of the Bendigo, Terrick Terrick, Loddon, Mount Hope, Gunawarra, and other tribes of Victoria, as well as the remnant of two large tribes in New South Wales—the Walithica and Calthaba, who occupied the territory between Moama and Deniliquin, extending eastward to the Moira Lakes and Edward's River. These tribes in early days were probably large, numbering several hundreds; but owing to the march of civilization, acquired estates, incursions, and reprisals they gradually became decimated, until now they are mere fragments of tribes, occupying an industrial village of about 200 residents and 1,800 acres of land that I obtained for their use in 1882 from the New South Wales Government. Besides these about 150 others are living semi-civilized lives in the district. The origin of the aborigines of Australia has always been a puzzle to the ethnologist. They were at one time supposed to be an offshoot from the Malays, but recent researches have allied them to the aborigines of Central India, who are nomadic, and in habits and appearance very similar. This opinion was forced upon me in 1881, from the visit to my station of an eminent scientist, from the anthropological schools of Paris. He made careful and exhaustive measurements and examinations of the limbs, colour of skin, texture and general character of hair, &c., of the people that left little room for doubt. Certainly they have nothing that I am aware of in common with the negro of Africa as compared with those of India. One remarkable fact, however, meets us here, and that is the strange similarity in the habits and customs of the North American Indians to the habits and customs of the aborigines of our island continent. To this I shall refer in another part of this paper.

The native population is presumably about 200,000, made up

from the following statistics :—Queensland 75,000, New South Wales 6,781, Victoria 482, South Australia 24,000, Western Australia 100,000. Moreover, large tribes have lately been discovered in the vast interior, and one can well presume there are many thousands who have never yet seen the face of a white man. The distinguishing characteristics of this race are their nomadic and incessant wandering habits. Their dwellings are of the rudest description and, they have no villages, so that their temperament is not adjusted according to the laws of civilized beings. However, they display a degree of intelligence that would scarcely be expected in a people so inferior, and this is especially noticeable in many details of life to which I shall briefly refer.

First, the construction of their wurleys, or camps, so as to defend them from the sun's rays and against wind or rain. And then, also, the peculiar make and formation of their weapons and hunting implements, some of which manifest not only mechanical but geometrical skill and precision, such as the boomerang, which by its strange formation and wonderful oscillations has puzzled equally the brain of the mechanic and the mathematician. Added to these are the common reed spear, or Cama, the jagged spear, and the nullah nullah.

The food of the aborigines varies with the climatic character of country and its natural resources. For instance, those of Queensland, the Northern Territory, and parts of Western Australia have a plentiful supply of nourishing diet from the natural tropical fruits, nuts, and game that are within easy reach. Those of the Upper Murray and its tributaries were always well supplied with a rich provision of fish, roots, plants, berries, fungi, and game which abounded in the forests and frequented the lakes, lagoons, rivers, and creeks. Many happy days have I spent with my wife and family in earlier days by camping with the blacks of our Station on the shores of the beautiful Moira Lakes, in order to relieve the confinement and monotony of the Mission, partaking with them of the flesh of the kangaroos, emus, opossums, the black swan, wild ducks, and the various forms of crustacea that abound in the shallow waters of the lagoons, such as the large crayfish (bapa) and the smaller varieties (Gonoca). Then, when our native boys and girls gave up their games for a little towards evening, they would, with tomahawk in hand, ascend the saplings and dexterously extract the luscious grub, which, when roasted, in the hot ashes of our camp fires, we all esteemed as a great delicacy.

The natural mode of cooking with the aborigines is by roasting.

They could not boil their food, not having utensils for the purpose. There are three ways of roasting, first, by placing the food upon charcoal embers ; second, burying in hot ashes ; third, by covering the bird or animal in soft clay and placing it in a hole in the ground which has been made red hot. These and other primitive methods adopted by them were no doubt the cause of their hardness and longevity before the white man made havoc among them, and will account for the beautiful whiteness and perfection of their teeth. Their only drink was cold water, and this they conveyed to their mouths by flapping it with their hands or by lying prostrate and sucking it through their lips. They sometimes made a kind of vessel for drinking or washing from the bark of a knotty excrescence on the trees or a miniature bark canoe called a Coolamon.

Originally their tomahawks were of stone, and the connection or fastenings for these as also the spears, shields, arrows, and other tools, implements and weapons, were effected by heated gum with a binding of kangaroo tail sinews, or for neater work, a strong thread made from spiders' web.

The natives of Northern Australia are entirely nude, except under special circumstances, but mostly wear a band around the loins, composed of grass or human or animal hair. They have not the sense of shame as with white people, but as they become associated with civilization are extremely careful to cover themselves. Those of semi-tropical and southern latitudes made rugs of the skins of opossum and wallaby, as a protection in winter and at night. Apart from these, they have never possessed any other article of clothing. On special occasions they decorate themselves with feathers, strips of skins, shells, bones of animals, and fishes, and colour their bodies with pipe-clay and with stripes of red or yellow pigments.

Their knowledge of surgery is very scant, but they have medicinal remedies in roots, plants, flowers, and shrubs, which, before the introduction of epsom salts, pills, and drugs, were accredited as being effectual. Their belief in the healing properties of eucalyptus leaves is possibly as old as the race, and I have known of many remarkable recoveries in consequence of its use. In my earliest recollections of this strange people I noticed the faith they had in the incantations and mysterious manipulations of the medicine man. He would chant some weird lay over his patient, make passes with his hand, drink a mouthful of water, squirt it upon the wound or painful part, and then make some fearful sounds finishing with an abrupt groan that was supposed to complete the recovery

of the case. Their faith in the white man's remedies was an easy transition for the blacks, and in my first acquaintance with them, they came to me for castor oil, Perry Davis's Pain Killer, and Epsom Salts with every confidence. On one occasion a a liberally disposed chemist visited my Station, and soon after sent enough drugs, patent medicines, pills, and potions to stock a store. On their discovering there was so much health boxed up, I was constantly pestered with men and women—old and young—night and day, and in my delightful ignorance, I served out the most palatable decoctions until they became exhausted; but when I descended the scale and arrived at the nauseous remedies they were accounted worse than the disease, and my customers dropped off one by one.

In process of time the blacks aspired to European clothing. In the case of one woman, who in the days of my batchelorhood skilfully washed and ironed my linen, I had refused, owing to her intemperance, to pay her in money, but supplied her liberally with flour and other rations from my store. On her expression of gratitude, I supplemented my gifts with a good lady's dress and a fashionable crinoline. The dress she knew the use of, but the crinoline was a perfect enigma. She thought it was a birdcage! A variety of explanations, however, and the assistance of a lady, resulted in Sally being so respectably dressed that she went immediately to the photographer's to get her picture taken, a copy of which, after 33 years, I still have in my possession—an evident proof that vanity is not confined to the white race.

The intelligence of the aboriginal native is displayed in their ingenuity in making a canoe from the bark of a large gum tree, and the careful and mechanical way in which it is shaped and made seaworthy. And then the clever way in which they cross rapid streams, or the wavy surface of sea and lake, with scarcely an inch of space above the water, displays an expertness that one might envy. Their modes of fishing were various, even before the white man invaded the territory of the native. They made nets of twine spun from grass, and fishing lines of the same material, with hooks from the bones of animals. On the rising and falling of the rivers, they lay a net across the mouth of a creek falling into or receding from the parent stream, and in this way captured large quantities of fish. In like manner they snared birds on the wing. Following along the winding course of a creek, as birds do in search of food, they invariably fly just near the tops of the highest trees with rapid motion. The expert blackfellow with keen eye adjusts a long and broad net from side to side of the creek, suspended from the high limbs of the trees, to

which are affixed grass ropes, to act as clues to gather up the net at the right moment. Large flocks of ducks, swans, and other game pass up or down according to their habit. When the birds are seen approaching, a shrill whistle is heard to imitate the note of a hawk, when the whole flock terrified, give a swoop which carries them into the net. The process of reefing is done with dispatch, and the game is captured with cheers of delight and ringing laughter, which are joined in by every member of the tribe.

The most remarkable feature of their fishing is that of spearing under water. Hearing of this when quite a youth, I took it cum grano salis, but in after years had convincing proof of its reality. I was standing on the banks of the Murray watching an aged black-fellow divested of his clothing, in a bark canoe, spear in hand; when in a moment he disappeared. Waiting for what I thought a reasonable time for his reappearance I got alarmed, and was just running away to get assistance when the old man's head came in sight, and a moment later he was standing in the canoe with a fine codfish on the end of his spear. Since then I have seen much of this kind of thing. One young man, the most expert of those at Maloga, felt a pleasure in teaching the boys on the Mission. A lad named Jack, who was getting instruction, went down with his tutor to a deeply sunken hollow log in the river. One had to poke the fish out while the other used the spear, and this must be done with open eyes and closed mouth. Jack, seeing what he supposed to be a large fish through a fork in the timber, used the implement with some force, but to his alarm he found he had struck his mate. On reaching the surface they both laughed, and I asked if they had seen the Bunyip down there. "No, Mr. Matthews; Jack speared me. He thought I was a fish." Sure enough, there was a wound in his breast, but the weapon had fortunately struck the breastbone; a few inches in either direction, it might have pierced his lungs or heart, and have caused death. The young man made light of it, although the blood flowed freely. Taking a little moist clay from the bank, he pressed it on the wound, and in a few days he was quite restored, but Jack never forgot the big fish he thought he speared. Another novel method of catching fish is adopted by the old aborigines, who were famous among the brave of their tribe. They dived with a small bag-net, and crept up the bank under water to a spot which they knew was the haunt of the large and phlegmatic codfish. Marking one who appeared full, fat, and lazy, one man would engage his attention, when his accomplice cautiously approached him and placed the net rapidly over his head, and so

captured him. Young fish are too lively to be caught in this way. In this lies a moral. Some food, such as fish or game, is forbidden. In this lies a moral.

Some food, such as fish or game, is forbidden. The red kangaroo cannot be eaten by girls or boys of tender age. The eggs of the black duck must not be touched by girls at the age of puberty, neither are they allowed to eat fish caught in a new net, as they would break out with red and running sores. Cannibalism has existed more or less in all the Australian aboriginal tribes, but not to the same extent in the interior as on the coast. Those of the Upper Murray, as far as I could learn, were not habituated to this dreadful practice, and when conversing with old and intelligent men at the camp fire—the spot where they are more likely to disclose tribal secrets—I ascertained that they were accustomed in case of war to eat the bodies of their slain enemies, but in no other cases, except when children are too numerous and troublesome to travel on long marches, when they have been known to kill, roast, and use them as food. A good blackwoman, of superior knowledge, who has lately died, I generally employed as my interpreter in eliciting information. She assured me that at no time had she partaken of human flesh, but her relations had. I asked my friend to enquire of an old woman sitting in the camp whether *she* had indulged in this way. She enquired in her language, “‘Boolama,’ when you young fellow, you eat ‘em (Yembena Cogun) dead blackfellow?” A dark cloud overspread the brow of the old lady, and she vehemently exclaimed, “(Yotta) no. When me girl, my granny tell me she eat plenty and meat belonging to that like it emu.” She then gathered herself up to pour forth her bitterest indignation upon such a foul act, emphatically protesting, and finishing up by saying in solid English “Your Granny dirty beast”—accentuating every word. They have their own racial laws for marriage that were binding and severely punished in the breach, but through improper relationships with the whites have become seriously impaired. To the demoralization that has arisen from reciprocal wrongs in this direction may be largely traced the rapid destruction of the original inhabitants of these colonies. One of the first acts of reform I adopted in collecting and bringing them into the Government reserves and villages was to induce them to marry according to our British laws. This they objected to at first, telling me they had been “married enough.” By judicious and firm action, I then locked the store door, refusing the food unless they obeyed. After a few days of conference and empty stomachs, a deputation waited upon me with the information they were willing to get

married. Through taking this stand I was enabled to put a stop to their illicit and unhappy relationships, and so brought in joy and contentment. The Upper Murray tribes, like all others, have strict statutes in reference to consanguinity. No blood relative, however distant, is allowed to marry in the same totem. The leading totems in the district and territory referred to are Kubbi and Murri, and marriage between these two classes was permitted. Many years after the establishment of our Mission Station at Maloga, a young man and woman became attached to one another, and expressed a wish to be married. I gave my consent, but just before the wedding the old men, in secret council, forbade it, and informed me of their decision. Seeing I was determined to do what I thought to be right, they threatened to burn down the Mission Houses, but observing my fearlessness, thought better of it. The happy union was therefore effected, and they have now a large family of bright and healthy children. But they made the husband subject at once to another arbitrary custom which prohibited him to speak to his mother-in-law, although they every day passed each other, and even met in camps and cottages. Doubtless there are cases in civilized lives where such restriction would not be considered an act of self-denial. Marriages are generally arranged between the neighbouring tribes, when the children are of tender age, and such promises are looked upon as binding. I have often seen women who have been given in marriage to men of distant tribes, when their first business is to acquire the language of the new relatives.

The superstitions, mythology, and legends of the natives are widespread, and a study in themselves of the most interesting character. I can scarcely touch upon them in this small paper, and personal experience has given me but a slender insight into what would prove well spent time. I possess, however, much information in diaries, extending over 36 years, and other acquired intelligence which will some day be of value. They have a knowledge of a Great Spirit, called Bai-Mai, whose names and attributes they fear and reverence. But they bestow more thought and attention to an Evil Spirit, who haunts their lives with constant dread. Then there are beings isolated and in companies, who presumably infest and wander near their camps and have the power to manifest themselves or be hidden at will. The terror of these is specially manifest at night, and leads them to cease wandering and to seek the protection of the camp at an early evening hour. It was once a circumstance of frequent occurrence when breaking up our meetings at night for a sound of alarm to be given, perhaps by a woman. She would state the cause of this to be the appearance of

a "wild blackfellow." Soon the men discovered what appeared to be his tracks, and no amount of argument could convince them to the contrary. In latter years they have gradually been taught the folly of these superstitions.

The extractions of the kidney fat by the medicine-man, or sorcerer, at any time, whether the subject be asleep or awake, sitting down or walking, has been confidently believed by the blacks, and that it is removed without making any incision. Individuals so treated, it is said, die—some rapidly, some gradually. Certain it is that men who are beguiled into the idea that this operation has been performed pine away and die, thus proving to the ignorant mind the apparent genuineness of this deception.

They have many mysterious ceremonies which are performed in secrecy at some lonely spot in the bush, and only by the men. Foremost among those is the "Bora," a cruel rite to initiate the boys of about the age of 14 or 16 into manhood. It is cruel in its details and extremely heathenish. The boys are divested of all covering, the hair is cut short, and two front upper teeth knocked out. While exposed for several days and nights to much bodily suffering, they have to endure excoriations on breasts, back, and shoulders, which are sometimes cauterized to complete the discipline. This fiery ordeal is supposed to afterwards fit them to be warriors, hunters, and worthy to take their place in the circle of the secret council.

Their carvings and drawings are worthy of notice. Although possessing but little artistic merit, they evince a fair share of intelligence for a people so low in the scale of humanity. The Corroboree cannot be classed as a ceremony. It is conducted mainly at the annual gathering of various tribes, and is enjoyed by every member, young and old, male and female, the women taking part also. It is a dance, a theatrical representation and a very clever display of nude and painted contortionists, who imitate birds and animals to perfection. The chanting of the men in deep tones to the beat of their feet upon the ground, preserving accurate time, the ringing sound of short sticks accompanied by the treble voices of the women, who beat out deep and drum-like notes upon opossum rugs stretched across their knees, is a scene weird and wild beyond description. When the scene is lighted with fires in several places, casting magnificent reflections upon the trees and deep shadows in the distance, one looks upon a sight that can never be forgotten. I have seen many corroborees, but the largest about 30 years ago in New South Wales, when upwards of 300 natives were present, but very few white people beyond myself.

The aborigines are splendid at games. I have often told them if they were as expert at business as at amusements they would become a wealthy people. They have become famous in acquiring British games, such as cricket, football, and other athletic exercises, but not to any moral advantage. Their associations with these has led them invariably into bad company, and gradually on to mental and physical prostration, decay and death.

The natural games were practised cautiously and moderately and tended to make them hardy and enduring. They were splendid runners, and they were strong and agile wrestlers; and then they had games with throwing the ball and spearing the bark disc as it rolled along, as practise for the young boys. Another game is throwing the "wich-wich," a small piece of round stick pointed at both ends with a little flexible handle attached, about 3 feet long, which they swing along the ground with immense velocity, making ricochets as it travels as far as 150 or 200 yards. Then as skippers, with ropes of grass, they are expert and excessively amusing as they imitate animals, lie down, walk on all fours, and perform other clever antics as the rope passes under them. These and many other forms of amusement made their lives happy in a round of perpetual pic-nic until the white man came and took possession of their birthright.

The result is that death comes to the native and strikes him down with unerring aim. Everything of the worst and nothing of the best that is associated with our civilization has contributed to shorten his life and end his days. Poison, the bullet, the rum bottle, diseases—unknown before the advent of our race—have each shared in the work of spoliation.

Their funeral rites were simple. A grave was dug, the body kept a day, then wrapped up in his blanket or rug with the knees bent, the legs doubled up, and the body securely tied around with grass cord. Usually the trifling belongings were enclosed with the corpse. He was carried to the grave in silence, for all the grief was apparently expended at the death or at previous transactions. On reaching the place of interment—which is nearly always a sandhill—matters are carried on in a very business-like way under the direction of the chief up to a certain point, when a wall of sorrow rends the air and a tidal wave of bitter lamentation sweeps across the assembled mourners. The grave is then filled in; branches are laid on the body first and then earth, and after this small sticks and logs in order to prevent the dingo from digging up and tearing the body. It has been a common thing to see men and women so frenzied with grief as to tear their hair, destroy their rugs, and cast their naked bodies upon the grave;

but now our funerals and burials are scenes of decorum and genuine sorrow.

It was my intention to draw a comparison between the North American Indians and those of Australia, but time will not permit in except in one instance: our aborigines on the death of one of their number do not mention his or her name, a custom which is identically the same in North America. It is, however, to be remarked that all these superstitions and prejudices have passed out of the lives of the young native; but the older ones now retain them.

And now, in conclusion, I must ask you to pardon me for any omissions I have incidentally made in this paper; I had no idea when it was commenced that the subject would expand in the way it has done. I thank you for your patience and attention and for the honour conferred upon me by the President and Committee of the Branch of the Royal Geographical Society in South Australia. The work itself in which I am engaged with my wife and family is, to us, of paramount interest in the earnest endeavour to ameliorate the condition of this hapless people throughout the Australian Colonies.

Chinese Notions on Geography and Geomancy.

By Rev. Dr. EITEL, M.A., Ph.D.

Read November 20, 1899.

Natural science, or rather that which in China stands for natural science, has never been cultivated by the Chinese in that technical, prosy, matter-of-fact fashion which seems to us inseparable from the science. Chinese observers of nature never took any pains in studying nature objectively ; the Chinese never troubled themselves to ferret out nature's secrets by minute and practical tests and experiments. They preferred to look at nature subjectively. They invented no instruments to aid them in the observation of the heavenly bodies ; they never took to hunting beetles and stuffing birds ; they shrank with horror from the idea of dissecting animal bodies ; nor did they even chemically analyse inorganic substances. The scientific frame of mind is to the Chinese irreverent vandalism, whilst the aesthetic view of nature is to them simply incomprehensible. No ; the Chinaman looks at nature neither as a scientist nor as an artist, but as a speculative philosopher furnished with the scantiest measure of positive knowledge of nature. The Chinese evolved centuries ago a whole system of what they consider to be natural science, out of their own inner consciousness, and expounded it with self-satisfied pride of antiquarian learning, according to the dogmatic formulae of their own ancient traditions. Ridiculous as the result of their unscientific speculations appears now to us, especially when we forget what crude views of nature our own ancestors entertained a few centuries ago, and deplorable as this deliberate neglect of practical observation and experimental investigation is, which opens the door to baseless conjectural fancies, this much must, after all, be said to be just to this Chinese form of natural science, that it preserved in the Chinese nation a spirit of reverence for the latent powers of nature.

Though modern Confucianism has long ago discarded the belief in one personal God, of which their classical writings still preserve a dead record, and though they substituted for the personal God, whom their earliest forefathers worshipped, an abstract entity,

devoid of personality, devoid of all attributes whatever, yet they look upon nature not as an inanimate fabric, not as a thing, but as a living, breathing organism. They see a golden chain of spiritual life running through every form of existence and binding together, as in one warm pulsating body, everything that subsists in the universe, in heaven above or on earth below. What has been admired in the natural philosophy of the Greeks, viz., that they made nature live, that they saw in every stone, in every tree, a living spirit, that they peopled the sea with naiads, the forest with satyrs—this intuitional, emotional, and reverential way of looking at natural objects—in one word the recognition of the law of solidarity binding together every created thing, is the leading characteristic of Chinese natural science. In taking this view, and placing side by side the Chinese and the Greek way of looking at nature subjectively, I do not identify the two. Both of these views are equally far from the modern objective and critical observation of nature, which alone deserves to be called scientific. But whilst the Greek way of looking at nature is aesthetic, imaginative, artistic, the Chinese mind, though totally imaginative and devoid of that essential grace of art, a sense of the ideal, yet looks at nature in a similarly emotional way, namely, as a child looks on its mother with a holy, reverential fear, as on a being surrounded with a halo of glory, and impressed by the indistinct consciousness of being in the presence of a great mystery.

The whole attitude of the Chinese mind, with regard to the two subjects of this evening's lecture, is based on this emotional child-like conception of nature. We may smile at the unscientific and rudimentary character of Chinese geography; we may emphasize the fact that every branch of intellectual knowledge in China is but a laborious, clumsy groping after elementary truths with which every schoolboy in Europe is familiar; we may conclude that China as a whole resembles but an overgrown child, on whose intellect has fallen a sudden blight, and who has since grown up to manhood, to old age, with no more real knowledge than that of a precocious baby. And yet, I say, looking at this same China, the oldest among ancient peoples, the greatest among great empires, or at least the most populous among all the countries of the world, hoary with old age, heavy, dull, childishly ignorant as regards matters of intellect and art, yet, I say, would God, that our own men of science had preserved in their laboratories, observatories, and lecture-rooms that same childlike reverence for the living powers of nature, that sacred awe and trembling fear of the mysteries

of the unseen, that firm belief in the reality of the invisible world and its constant intercommunication with the seen and the temporal, which characterizes these Chinese gropings after natural science, and which a modern English poet, plucking a little flower out of an old crannied wall and holding it up in his hand, expressed in these words :—

Little flower—If I could but understand
What you are, root and all, and all in all,
I should know what God and man is.

Having said this much to characterize and excuse by 'way of preface, the typical attitude of the Chinese mind with regard to natural science in general, I now turn to the two special subjects of geography and geomancy.

As regards Chinese notions of geography, I will confine myself to a few remarks in order to gain more time for an exposition of the more interesting subject of Chinese geomancy. In fact, I proposed to speak on Chinese notions of geography chiefly to mark my sense of the respect due to the primary object of the august Royal Society, under whose auspices I have the honour of addressing you. That the Chinese deserve in some measure the regard of any Branch of the Royal Geographical Society seems to me incontestable on the basis of the fact that the Chinese were, chronologically speaking, the first geographers of whom the world's history knows. At a time, twenty-two centuries before our Christian era, when all Indo-European nations were yet, so to say, in their cradle, the Chinese Emperor Yü, the founder of the Hsia dynasty, which ruled China from 2,205-1766 B.C., surveyed the nine central provinces of China, registered its natural products, and placed before the altar of earth nine iron tripods, on each of which a chart of one of the nine provinces was engraved. He was the first royal geographer in the history of mankind. A few centuries later, the Chow Dynasty, which commenced to rule in the year 1122 B.C., established, some time before the 9th century previous to our era, a special bureau for the collection and registration of topographical records, with a staff of 220 officers. That was the first Royal Geographical Society ever established. After that time, every successive dynasty that ruled over China had its topographical department and handed down from age to age the records which were constantly added to. To a survey of the whole earth, to that which we understand by geography in its widest sense, the Chinese did not rise, but not for want of a conception of the organic whole which the earth forms and which geography must accordingly represent.

Their mental horizon was confined by the periphery of their national consciousness. China was to them the centre of the universe. The heavens were there for the special benefit of China's millions ruled as they were by the Emperor as the one Son of Heaven, and all the other countries of the earth were merely an unimportant fringe of tributaries dependent on the influences of China as the Middle Kingdom, the Celestial Empire, of the earth. The charts of this universal empire were, indeed, in a rather confused condition until about 200 years ago the Chinese Government employed a staff of surveyors under the direction of learned Jesuit priests to make a regular scientific survey of the eighteen provinces of China Proper. On the basis of that survey, which was completed in 1717 A.D., a special Imperial Commission revised all the ancient topographical records, and published a large encyclopædia of Chinese geography, in 124 large, closely printed volumes, published in the year 1744. That Commission was the second Royal Geographical Society which the Adelaide Branch of that name may include among its ancestors.

But it is not only with regard to priority of time that Chinese efforts in the cause of geography deserve our respect and interest. We must also honour the earnestness and thoroughness of their conception of the sphere of geography. To a Chinese geographer it is the merest smattering of geography to describe, be it ever so accurately and minutely, the internal and external features of the earth from the point of view of what we call mathematical, physical, and political geography. All that, he would say, is the mere A B C of geography, and it is no good at all unless you show teleologically the purpose, the social, religious, political, functions which the several geographical features of each country are intended to fulfil for the good of its people. Nothing is in the world by accident. Every mountain, every river, every ocean, every country has its mission, its peculiar destiny in the history of the world. What, then, is the use of the minutest and fullest geography of a country, unless that geography shows how the geographical features of a given country affect the character, the morals, the religion, the civil, military, and constitutional history of its inhabitants? Was it an accident that the British Isles were placed where they are? Is it not the insular position, the climatic, geological, hydrographic, geodesic influences of their peculiar country that have materially assisted in moulding the peculiar character and to a great extent shaped the social, religious and political history of that peculiar people called Englishmen? And since these same Englishmen settled in Australia,

do we not see that English character, English speech, English morality, English politics, are gradually undergoing a metamorphosis, largely due to the subtle but potent influences of the geographical features of Australia? But if this is so, it is plain that a geography of Australia which does not include an exposition of those mysterious geographical influences on the destiny of the Australian section of the British nation, is not a geography worthy of its name.

Such is the Chinese view. And it just comes to this—that the backbone of geography is geomancy. Geography in the Chinese sense becomes perfect and practically useful only when you turn geographical knowledge to purposes of divination; that is, elementary geography is only the stepping stone to the mysteries of geomancy. This brings me to my principal subject: Chinese notions with regard to geomancy.

It is, however, impossible for me to condense into the space of one lecture a complete exposition of the Chinese system of geomancy. I must content myself with an outline of some of its principal features.

In the beginning, it is said, there was one abstract principle—"The absolute Nothing." This abstract principle of Nothing then produced, by evolution out of itself, "the great Absolute," which is the primordial cause of all existence. When this great principle, the great Absolute, first moved, its energy, congealing, produced the positive or male principle or breath of nature. When it had moved to the uttermost, it rested, and in resting produced the negative or female principle or breath of nature. After having rested to the uttermost, the male principle moved again, and thus continued ever since in alternate motion and rest, in expanding and reverting energy, without cessation. Now, when the great absolute principle first divided itself into male and female, the positive or male energy, concentrated, became heaven, whilst the female or negative energy constituted the earth. In the course of the constant permutations that went on between these two principles, all the heavenly bodies and all beings and existence on earth came into being. But when that double breath of nature first went forth, and ever since, it followed and still follows certain mysterious laws. These laws constituting the order of nature were therefore prior to the male and female breath of nature. Further, all the laws of nature exhibit certain numerical proportions. But these three, the breath, the order, and the numerical proportions of nature are hidden from view, and only become manifest through the visible forms and outlines of physical nature. Hence there are four principles to be considered

as the principal factors in the evolution of nature—first, the general laws of nature, next her numerical proportions, then her vital breath, and finally her forms of appearance. These four divisions of natural science constitute geomancy.

And first, as to the laws of nature. Everything that exists on earth is but the material form of appearance of some celestial agency. Everything terrestrial has its prototype, its primordial cause, its ruling agency in heaven. The Chinese philosopher, looking at the beauties of nature, the variety of hills and plains, rivers and oceans, the wonderful harmony of colour, light and shade, sees in it but the dim reflex of that more splendid scenery frescoed in etherial beauty on heaven's starry firmament. He gazes at the sun, that dazzling regent of the day, and recognizes as his terrestrial reflex, the male principle of creation, ruling everything that is under the sun—the expanding breath of nature. He lifts up his eye to the moon, the beautiful queen of the night, and sees her reflex on earth in the female principle pervading all sub-lunary forms of existence—the reverting breath of nature. He observes the swift rotatory course of the five planets, Jupiter, Mars, Venus, Mercury, and Saturn, and sees their counterpart on earth in the ceaseless interchange and permutations of the five elements of nature—wood, fire, metal, water, and earth. He contemplates the spangled firmament at night and compares with it its dimly reflected transcript on the surface of the earth, where the mountain peaks form the stars, the rivers and oceans answering to the Milky Way. In short, the earth is to a Chinese beholder the mirror in which heaven reflects itself legibly; earth is the mysterious textbook in which the laws of nature, the destinies of nations, the fate and fortunes of every individual are written in hieroglyphic mystic characters, intelligible to none but the initiated.

Now to decipher these tables of heaven as registered on the surface of the earth; to break the seals of this apocalyptic book, is the prime object of geomancy, and the first method to be employed in the deciphering of this terrestrial horoscope of the future, the first key that is to be inserted to unlock that puzzling safe in which the fortunes of present and future generations are locked up, is the knowledge of the general principles or laws of nature. Learn, then, if you will learn your fortunes, and treasure well these lessons:—(1) that heaven rules the earth; (2) that both heaven and earth influence all living beings, and that it is in your hands to turn this influence to the best account for your advantage; (3) that the fortunes of the living depend also on the goodwill and general influence of the dead.

As to the first point, the influence which heaven exercises upon the earth, the agencies which here come under consideration are the sun and the moon, with the 12 signs of the zodiac and the 28 constellations, the five planets, the seven stars of the Great Bear and nine stars of the Northern Bushel. I pass over the details as to these heavenly bodies with the exception of one point of interest. The Chinese look upon the seven stars of the Great Bear as forming a natural clock, for the body of this constellation, being in ancient times considerably nearer to the North Pole than it is now, the tail appeared to move round the pole somewhat like the hand of a clock. Considering, then, the earth's horizon to form the dial plate and dividing the horizon into 24 equal parts, whilst the tail of the Great Bear acts as the hand of the clock, the Chinaman has a simple method to determine the 24 seasons of the year. When the tail of the Great Bear points at nightfall to the east, it is spring to all the world; when it points to the south, it is summer; when it points to the north, it is winter. The light of these seven stars is supposed, moreover, to exercise a great influence upon the earth and its inhabitants.

The next point to be considered is the influence which both heaven and earth exercise upon human beings by means of the five elements of nature. By these, however, we must not understand five material substances, but rather spiritual essences forming the generative causes of all material substances. These five elements are wood, fire, earth, metal, and water; the first of them (wood) being the agent of Jupiter, the second (fire) that of Mars, the third (earth) belongs to Saturn, the fourth (metal) belongs to Venus, and the fifth (water) to Mercury. But it is also important to observe the mutual relation of the five elements to each other. Wood produces fire, fire produces earth, earth produces metal, metal is said to produce water, and water produces wood. On the other hand metal destroys wood, wood destroys, that is, absorbs earth, earth absorbs water, and water destroys fire, while fire destroys metal. Again it is considered that the natural home of wood is in the east, metal is at home in the west, water in the north, fire in the south, while earth predominates in the centre between the four cardinal points. It is also to be borne in mind that wood reigns in spring, fire in summer, metal in autumn, and earth during the last 18 days of each season. Now, it is obvious that with a certain amount of ingenuity, a fortune-telling adept in geomancy can apply these various categories, at will, to the interpretation of any situation in life, to the environment of any person or locality, and play the prophet in a learned and to the uninitiated astonishing jargon of

apocalyptic wisdom. Even to the healing art can these categories be applied for the purpose of fanciful prognostications, for the five-fold influence of the five planets and the five elements is also said to pervade the human frame. Jupiter is said to affect the muscles, Mars the veins, Saturn the flesh, Venus the bones, Mercury skin and hair. So also the five viscera are placed under the influence of these agencies, the heart being affected by Jupiter, the liver by Mars, the stomach by Saturn, the lungs by Venus, and the kidneys by Mercury.

In addition to the foregoing influential factors governing the destinies of mankind, there are to be considered the influences which the spirits of the dead exercise upon the living. This is a doctrine which seems strange to us, but which has nothing unreasonable in it to a Chinaman, in whom the belief in the solidarity of ancestral and individual life is inborn and who is daily accustomed to bow down and worship the spirits of his ancestors whom he supposes to be constantly hovering near and to whom he therefore formally announces, at the ancestral shrine, every event in his family, with sacrifices of meat and drink. The spirits of deceased ancestors are thought to be as omnipresent as the elements of nature, as heaven and earth themselves. The Chinese consider themselves as constantly surrounded by a spirit world, invisible, indeed, and inaccessible by touch or handling, but none the less real, none the less influential. Now the common people have the notion that the spirits of the ancestors are by their former connection with animal nature chained as it were for some time after death to the tomb in which their bodies are interred, whilst by their spiritual nature they feel impelled to hover near the dwellings of their descendants. Hence it is a natural inference to suppose that the fortunes of the living depend in some measure upon the comfort of these spirits of the dead, which comfort in turn depends upon the favourable situation of their respective tombs. If a tomb is so placed that the spirit of the deceased ancestor, supposed to dwell there, is free of disturbing elements, so that the spirit has unrestricted ingress and egress, the spirit concerned will feel well disposed towards his descendants, surround them, hold watch and ward over them, and shower upon them all the blessings within reach of the spirit world. Naturally, therefore, every Chinaman takes the greatest pains to place the tombs of his deceased relatives in such a situation that no star or planet above, nor any terrestrial element below, no malignant breath or dangerous influence of nature, no ill-portending configuration of hills and dales, should frighten the spirits of the dead or disturb their peaceful repose; for upon this depend

the fortunes and misfortunes of the living. The question, therefore, occurs at every death that takes place, where the luckiest burial-place under all the circumstances of the case can be found, and as the place best adapted for a grave depends principally upon the happiest conjunction of all heavenly and terrestrial influences, it is clear that it requires deep learning in geomantic lore to hit upon the happiest spot. The principal rules to be observed are as follow. In the first instance, it must be understood that there are in the earth's crust two different, as it were, magnetic currents, the one positive or male, the other negative or female; the one favourable, the other unfavourable, unless they are specially reconciled. The positive current is called the azure dragon, the negative one is called the white tiger. The azure dragon must be always to the left, the white tiger to the right of any place supposed to contain a luck-bringing site. This therefore is the first business of the geomancer on looking out for a propitious site, to find a genuine blue dragon and its complement, a genuine white tiger, both being discernable by certain elevations of the ground. Dragon and tiger are constantly compared with the lower and upper portions of a man's arm—in the bent of the arm the favourable site must be looked for. In other words, in the angle formed by dragon and tiger, in the very point where the two magnetic currents, which they individually represent, cross each other, there may the luck-bringing site, the place for a tomb, or likewise the luck situation for a house for the living, be found. But besides the conjunction of dragon and tiger there must be also a tranquil harmony of all the planetary and elemental influences which affect that particular spot. This is to be determined by observing the special geomancer's compass, to which I shall presently refer, and its indications, and by examining the direction of the watercourses. Another rule is, that on a perfectly monotonous ground or on steep declivities where there is no clear indication of dragon and tiger, no good site can possibly be found. A third rule is, to observe the distinction of male and female ground. Boldly rising elevations are called male, whilst uneven softly undulating ground is called female ground. On ground where the male characteristics prevail, the lucky site is on a spot having female characteristics, either visible to the eye or indicated by the compass, and vice versa. But the most favourable prognostics belong to a spot where there is a transition from male to female or from female to male ground and where the surroundings combine, as indicated by the compass, both female and male characteristics in the proper proportion, which the geomantic books state to be three-fifths male and two-fifths female ground.

Where, however, the female indications exceed the male, there are malignant influences at work, counteracting all other favourable configurations.

As to the doctrine of the numerical proportions of nature, to the exposition of which one of the ancient classics is devoted, and to the study of which Confucius gave the greater part of his life, I can only give a few hints. This ancient philosophy of the numerical permutations of nature is a fanciful mystic scheme concerning a series of 2, 4, 8, and 64 geometrical diagrams, based on the idea of duality pervading the course of nature's evolution. Now, all the mysterious diagrams of this ancient philosophy have been combined for the purposes of geomancy in the form of a compass, containing in the centre a magnetic needle pointing, as the Chinese say, to the south, and surrounded by emblems of the great male and female principles of nature. Round these are inscribed on the compass plate 18 concentric circles, each containing the mystic signs of the various factors representing the influences which heaven and earth exercise upon the destinies of mankind, viz., the four primitive and eight secondary diagrams, the five planets, the five elements, the seven stars of the Great Bear, the nine stars of the Northern Bushel, the 12 signs of the Zodiac, the 12 points of the compass, the 12 months of the year, the 24 seasons, the 28 constellations, the 64 diagrams, the solar orbit, the lunar ecliptic, the 360 degrees of longitude, and the 365 days of the year. Now, of course, when this compass is consulted with reference to any given locality, it is not only the one or other of those 18 circles, but a section or more of every one of them, that is made to contribute some quota towards the determination of the lucky or unlucky aspects of the place in question. The result, therefore, is that this compass affords to the ingenuity of an unscrupulous geomancer a rich and varied mass of bewildering categories as a basis for his skill in lying divinations, which, clothed in the phraseology of the authoritative classical philosophy of sacred antiquity, impress the mind of the common people with the belief that this compass is a most mysterious compound of supernatural wisdom. The common people know all the terms which the compass furnishes by name, but, not understanding their meaning, they regard the terms themselves with reverential awe, supposing them to exercise some mysterious magic influence. Now, the geomancer, taking advantage of this popular prejudice, comes to them with his compass in his hands, and pronouncing his judgment with reference to any given spot in a mystifying, learned jargon, his apocalyptic utterances are received with super-

stitious dread even where there is not much faith in the system. The geomancer himself knows very well that his predictions are all guesswork, based on what his sagacity, shrewdness, and experience suggest. But he also knows that his prophecies are sometimes wonderfully realized by the very stimulus which the fears or hopes aroused by his words supply, and though his predictions may more frequently be disproved by actual events, he has disappeared from the scene before retribution would be likely to reach him.

As regards the doctrine of nature's breath, I must also restrict myself to a few words. Wherever, it is said, nature's breath is energetically pulsating, some indication of it will be visible by elevation or depression of the earth's surface. Even the nearer veins and arteries may be traceable by the eye of the skilled geomancer or at any rate by his compass. Where there is the breath of the blue dragon, there will also be found the breath of the white tiger, indicated in the tortuous outlines of ridges. But it is the business of the geomancer to prospect the ground so as to be able to point out the dragon's trunk and limbs, and even the very veins and arteries of his body, running off from the dragon's heart in the form of chains of hills. As a rule, it is said, there is an accumulation of vital breath near the dragon's waist, whilst near the extremities of his body the energy of nature's body is likely to be exhausted. At a distance of six miles the breath becomes feeble and ineffective. But even near the dragon's heart the breath of nature, unless well kept together by surrounding hills, will be scattered. When the frontage of any given spot, though enjoying an abundance of vital breath, is broad and open on all sides, admitting the wind from all directions, or near a number of gullies which act like so many funnels, there the breath will be of no advantage, for the wind and gullies scatter it before it can do any good. Only in places where the breath of nature is well kept together, being fairly shut in and favoured with a drainage system carrying off the water in winding, tortuous courses, there are the best indications of a permanent supply of vital breath. But there is also a malignant and pernicious breath of nature. Wherever there are abrupt elevations, bold, rugged outlines without any gradual slopings, there is dangerous breath there. As a rule, all straight lines and sharp angles indicate danger, anything, in fact, that suggests an arrow laid on a bow. Detached rocks and boulders also, unless screened by a background of trees, afford an evil augury. But all such evil configurations, and the dangerous breath indicated by them, may be fended off and counteracted by the planting

of trees and by providing ponds having a supply of fresh water. This is the reason why in South China every village, every isolated house, has a little grove of bamboos or trees behind and a pond in front. A pagoda, however, or a wooded hill answers the same purpose. For this reason, the hills at the back of Canton city, crowned with a five-storied pagoda, are supposed to fend off the evil breath of the alluvial ground on which the city is built. Another device to keep off malignant influences is to place opposite the gate of your house a shield or octagonal board with the emblems of the male and female principles or the eight diagrams painted thereon, and to give the pathway or carriage-road leading up from your gate to your house door a curved or tortuous direction. Lions carved in stone, or dragons of burnt clay, also answer the same purpose, and may be placed either in front of a building or on the roof, but by far the best and effective means is to engage a first-rate geomancer, to do what he says and to pay him well.

As regards the doctrine of nature's forms of appearance, the first point to pay attention to, in selecting a lucky site suitable for a dwelling house for the living or for a grave for the dead, is to discover a locality that presents such configurations as make the relative position, extent and direction of the rising ground that contains both dragon and tiger, a certainty. Where two ridges meet so as to form a regular horseshoe, there is likely to be ground of the best augury, provided that there are no other unfavourable conjunctions. Another important point for consideration is the direction of the watercourses. A curved and tortuous course is the best augury of the existence of beneficial influences. But the junction of two watercourses causes danger, unless the junction takes place in a graceful curve and the conjoined waters roll on in a tortuous course. A third point calling for attention is the form and shape of hills and mountain tops, for they are the points whence the influences of the planets and stars radiate. If a peak rises up bold and straight, running out into a sharp point, it is identified with Mars and declared to represent the element fire. If the point of a similarly shaped is flat but comparatively narrow, it is said to be the vehicle of the influences of Jupiter and to represent the element wood. If the top of a mountain forms an extensive plateau, it is the representative of Saturn, and the element earth dwells there. If a mountain rises up to a fair height, but its peak is gracefully rounded off, it is called Venus, and governs the element metal. A mountain whose top has the shape of a cupola, is looked upon as the agent of Mercury, and the element water dwells there.

Now, of course, where there are several mountains or hills in close proximity, it is deemed all-important to find out whether the planets and elements which the several mountains respectively represent form a harmonious, peaceful union, for the luck of a place depends in a great measure upon this that the planets and elements governing a place should be friendly or allied to each other. For instance, the mountain on the slope of which the City of Hongkong is built, presents the outlines of Jupiter, and is therefore under the influence of the element wood. But at the foot of the mountain is a hill called Taipingshan, with the outlines of Mars, and therefore the representative of the element fire. Now, a pile of wood with fire at the bottom—what is the consequence? Why, it is no wonder that most conflagrations which occur in Hongkong commence in the Taipingshan district. In general, the association of ideas connected with the outlines of hills and mountains is of great importance. If a man erects a house or tomb on a hill resembling in its general contour the form of a broad couch, then its influence will make his sons and grandsons die a violent or premature death. If he builds on a hill which resembles a boat turned bottom upwards, his daughters will be always ailing and his sons will spend their days in prison. If a mountain presents the general outlines of a bell whilst the top of it resembles Venus, then it may be expected that it is the vehicle by which the seven stars of the Great Bear throw a deadly light on the owners of a grave erected there, so much so that they remain childless and the family becomes extinct. Most dangerous are supposed to be hills which resemble the one or other of the following objects—a basket, a ploughshare, the eye of a horse, a turtle, a terrace, or a meadow.

There is finally one point to be referred to which is deemed of the greatest importance. Heaven, it is said, requires the aid of man to carry out its schemes of justice. Earth requires the aid of man to bring its products to perfection. Neither heaven nor earth are therefore complete, but leave it to man to add the finishing touches to nature's work. Consequently, as regards the natural outlines of the earth's surface, there is much room left for the active interference of man. The influences of the planets and elements, of the blue dragon and white tiger, are very great, but they are not all. The influence of the natural configuration of the ground may powerfully affect the destinies of men, but man may alter the natural configuration of the ground, modify the outlines of hills, and give the breath of nature a different direction. If there is any elevation not high enough to be propitious, he can make it higher. If any natural watershed is running in a straight

line, dangerous to life and property, he can either remove it or turn it into a favourable direction. . If a hill, resembling Mars and representing the element fire, is situated at the foot of a mountain representing Jupiter and the element wood, he can avert all danger by cutting off the point of the hill and converting Mars into Jupiter. Such changes are frequently made in China, and travellers frequently notice a pointed mound erected at great expense on the top of a high but somewhat flat mountain. Such a mound is generally raised by public subscription to convert that mountain, which, being flat, corresponds to Saturn, into Mars, for the element fire, though itself never giving propitious ground, is frequently required as a balancing element to enter into the general configuration of favourable surroundings.

We see, therefore, it is left in a great measure to man's foresight and energy to turn his fortunes into any channel he pleases, to modify and regulate the influences which heaven and earth bring to bear upon him, and it is the boast of the Chinese system of geomancy that it teaches man how to rule nature and his own destiny by showing him how it is that heaven and earth influence him.

I conclude with the question, what is the sum and substance of Chinese geomancy? We have seen that it starts with a few notions of astronomy or rather astrology, hazy and obscure but respectable enough, considering that it was more than two thousand years ago that the Chinese took hold of them. It is based on a peculiar scheme of philosophy, which had studied nature in a pious and reverential, yet in a very superficial and grossly superstitious manner, but which, trusting in the force of a few artificial formulæ and mystic diagrams, vainly endeavoured to solve all the problems of nature with a few logical categories. The result, of course, is a farrago of nonsense and childish absurdities, taken advantage of by professional sharpers to gull and fleece the ignorant multitude.

But, however absurd and false, this system of geomancy, known in China by the name of Fung-shui, is a tremendous power. It is an essential part of ancestral worship, which is in China that which religion is to us; and this system of geomancy is, moreover, so engrafted upon Chinese social life and has become so firmly intertwined with every possible event of domestic life, that it cannot be uprooted without a complete overthrow and consequent re-organization of all social forms and habits. Accordingly, it has also a legal status in China. When there is anywhere in China a dispute on the ground of alleged interference with the beneficial geomantic aspects of a tomb or dwelling house, the

judicial tribunals of China will entertain the claim for compensation, and seriously and minutely examine into the merits of the plaint, decide the case and assess damages on the supposition that geomancy is a positive science and not a wild conglomeration of fiction and superstition. There is hardly anything which has, in the history of the intercourse between European residents in China and the native population been a more fruitful source of collision, compensation claims, and deadly hatred against Europeans, than this universal belief of the Chinese in the system of geomancy. Almost every dwelling, warehouse, or church erected by Europeans on Chinese territory has a history of repeated collisions with the national belief in geomancy.

The only powerful agent likely to overthrow the almost sovereign rule of geomancy in China is the spread of sound views of natural science. There is one good point in Chinese geomancy with which true science can agree, and that is the recognition of the uniformity and universality of the operation of natural laws. There is one radical defect in Chinese geomancy which European physicists have since Bacon's time happily discarded, and that is the neglect of an experimental and critical survey of nature in all its details. Let this defect be supplied by a full and popular exposition of the uniformity and universality of the true laws of nature ; let correct views be spread regarding those continually interchanging forces of nature, electricity, magnetism, chemical affinity, and motion ; let these views be set forth in as forcible and attractive and popular form as the best native Chinese essays on geomancy can boast of, and the issue of the whole cannot be doubtful. The fires of science will purge away the geomantic dross, but only that the truth may shine forth in its golden glory.

PROCEEDINGS
OF THE
Royal Geographical Society of Australasia.
(SOUTH AUSTRALIAN BRANCH.)

FOURTEENTH SESSION, 1900-I.

COUNCIL MEETINGS.

July 13, 1900.

Present—Ten.

A circular was read from the Hon. Secretary of the Library Association, asking for the Society's assistance in connection with a Loan Exhibition to be held shortly. Resolved—"That this Society accede to the request, and will gladly co-operate with the Association in lending such books, maps, or other articles as may be deemed suitable for the proposed exhibition."

August 14, 1900.

Present—Eight.

His Excellency the Governor forwarded a letter from Mr. T. H. Peet concerning some ruins of two stone buildings which he had discovered in 1838 on Thistle Island, and stating that at the doorway of the largest building he there saw a stone let into the ground inscribed with the figures 178, another figure close to the 8 being illegible. He further stated his belief that these buildings were erected by La Perouse, who was wrecked in 1788. Resolved that enquiries be made about the matter. A letter was read from Mrs. Lionel Stanton, sister of the late Ernest Giles, Explorer, draw-

the Council's attention to the neglected condition of her brother's grave in Coolgardie. It was decided to forward a copy of the letter to the Hon. the Premier of Western Australia.

The Hon. Treasurer (Mr. T. Gill) showed to the meeting some letters written by Sir George Grey and Mr. E. J. Eyre and some other valuable and interesting documents relating to the explorations of Sturt and others in the interior, and which documents the Hon. Premier had received from the Government of New South Wales.

The President was requested to interview the Premier in order, if possible, to obtain these documents for the Society, or to have them deposited in the Public Library.

The President presented a framed copy of the "Observer," of January 3, 1863, containing Mr. J. McDouall Stuart's diary made on the journey across the continent. This paper was found a few years ago near Mount Philipson, 400 miles from Port Augusta, nailed to the bark of a tree. The President was thanked for his gift.

Mr. Whitham drew attention to the condition of "Frenchman's Rock," at Hog Bay. It was resolved to write the Premier respecting it.

October 5, 1900.

Present—Seven.

Mr. J. Le M. F. Roberts wrote, presenting to the Society a canteen used by one of the late J. McDouall Stuart's party in one of his expeditions, and which the donor found in the interior. Mr. Roberts was thanked for his gift.

A letter was read from the Hon. the Premier of Western Australia, stating that his Government would erect a headstone over the grave of the late Ernest Giles. Resolved—"That the Premier be thanked for his consideration and prompt reply, and that in the opinion of this Council, the form of memorial should be left to his Government.

Letters were read from the Under-Secretary and from Mr. A. Hirst and Mr. W. D. Cleland concerning Frenchman's Rock. It was resolved to thank Messrs. Hirst and Cleland, and in reply to a request of the Under-Secretary for a suggestion from this Society, to inform him that this Council recommends that the rock be enclosed by an iron fence and its face painted with some transparent composition, and suggests, with regard to the composition, that the Premier should request the Agent-General to ascertain

the most suitable preservative, such as was used in preserving the "Cleopatra's Needle," Parliament House, and Westminster Abbey.

Mr. Thomas Gill presented to the Society a photograph of Frenchman's Rock and another of the late Ernest Giles, explorer. The gifts were acknowledged.

The Assistant-Secretary reported that a number of exhibits had been delivered to the Hon. Secretary of the Library Association for the conversazione to be held on the 9th proximo.

The following Resolution, with reference to the forthcoming expedition of Professor A. Baldwin Spencer and Mr. F. J. Gillen, was agreed to :—"This Council desires to place on record its gratification at the action of leading scientific men in the mother country in urging upon the Governments of the Australian Colonies the importance of extending ethnological enquiry relating to the aborigines of Central Australia by Professor Baldwin Spencer and Mr. F. J. Gillen." The Council also gladly records its appreciation of the promptitude with which the Government of this province acted, in granting Mr. Gillen one year's absence on full pay ; and of the Government of Victoria in contributing £600 towards the salary of Professor Spencer, and also of the public spirited generosity of Mr. David Syme, of Melbourne, in defraying the cost of fitting out and equipping the expedition. It is with great satisfaction they learn that the University of Melbourne has granted the necessary leave of absence to Professor Spencer to enable him to extend his valued ethnological investigations in connection with the primitive inhabitants of the interior of Australia.

It was further resolved that copies of this resolution be forwarded to the Governments of South Australia and Victoria and to Mr. David Syme.

December 13, 1900.

Present—Nine.

Letters were read from Mr. T. L. Tapley, giving the result of his search, made at the request of the Society, of the ruins of Thistle Island, referred to in the letter of Mr. T. H. Peet, as considered by the Council on August 14.

Mr. Tapley reported that he had carefully examined the ruins and had unearthed the stone in the doorways, which had no marks or figures on them. Resolved that the thanks of the Council be given to Mr. Tapley for his kindly action in this matter.

A letter was read from the Hon. Secretary of the Library Association, thanking the Society for the loan of exhibits at the recent conference.

A circular was received from Sir Hugh Nelson, asking for a subscription to the Thomson Medal Fund, which is being raised to found a medal in honour of Mr. J. P. Thomson, of Brisbane, such medal to be awarded annually to the contributor of the best paper on Geographical Literature to the Queensland Geographical Society.

Members of the Council expressed their appreciation of the valuable services rendered by Mr. Thomson to geographical science, and it was resolved that the Society contribute £8 8s. to the fund, one member having generously offered to subscribe five guineas towards the amount.

It was resolved that Messrs. Spencer and Gillen be informed that this Society will be pleased to receive any information of geographical interest they may acquire in their expedition.

It was resolved to ask the Government to pay the cost of an inscription on a rock to be selected on the Bluff, near Port Victor, to commemorate the meeting of Captain Flinders of the Investigator, and Captain Baudin, of the French vessel Le Geographe, at the centenary of that event, on April 8, 1902.

March 14, 1901.

Present—Five.

The Council met to bid farewell to Professor Spencer and Mr. F. J. Gillen, prior to their departure on their Ethnological Expedition through the centre of Australia. The Chairman (Mr. Newland) and other members spoke, wishing them God-speed and success. Professor Spencer thanked the Council for their assistance, and briefly outlined the scope of the work they hoped to accomplish, and specially mentioned their appreciation of the phonograph given to them by Mr. J. Angas Johnson. Mr. Gillen also spoke.

April 1, 1901.

Present—Nine.

A letter was received from the Secretary of the Queensland Branch forwarding circulars giving particulars of the competition for the Thomson Foundation Medal, to be awarded by that Society this year for the best original paper on each of the following subjects, viz.—

1. The Commerce of Australia.
2. The Pastoral Industry of Australia, past, present, and future.

It was resolved to forward the circular to the Chamber of Commerce, the Chamber of Manufactures, the Pastoral Aid Association, and the Literary Societies' Union.

A letter was read from the Secretary of the Victorian Branch, forwarding suggestions for the issue of an annual or half-yearly volume of joint transactions of the several Societies.

It was resolved that this Society cannot entertain the proposal at present.

Mr. Newland reported that when recently visiting Port Victor, he and Mr. Reed (the Assistant Secretary) had selected a rock on the summit of the Bluff for the proposed inscription commemorating the meeting of Captain Matthew Flinders and Captain N. Baudin near that spot.

The President stated that he had interviewed the Premier, who had promised to defray the cost of the inscription.

The Premier forwarded the letters of E. J. Eyre, the explorer, and the "Government Gazeete," and papers of Sir George Grey—mentioned in a previous Council meeting—as a gift to the Society; the documents, however, to be loaned to the Public Library until the Society has permanent rooms of its own in which to exhibit them. The gift was accepted on this condition, and it was decided to make typed copies of the same. These have now been printed, and will be found in Appendix A.

The Treasurer reported that a letter of condolence had been forwarded to His Excellency the Governor on the death of the Queen, and its acknowledgment was read.

Mr. Auld reported that Mr. R. T. Maurice had offered to equip and conduct an expedition to explore the country north and north-west of Fowler's Bay, and that, at his request, the Government had agreed to send a surveyor with the party; that Mr. Maurice and the Surveyor (Mr. Murray) would leave shortly, and that Mr. Murray had promised to keep a journal for the Society.

Mr. Gill reported that Professor Spencer and Mr. Gillen had promised to furnish the Society with copies of their journals.

Mr. Whitham reported that he had recently seen at Coolgardie the monument erected by the Western Australian Government to the memory of the late Ernest Giles, the explorer, and regarded it as a very handsome memorial.

May 28, 1901.

Present—Eight.

A letter was forwarded (through the Surveyor-General) from Mr. Hope Harris, with reference to the proposed Antarctic Expedition, on the importance of ascertaining the true geographical position of the South Magnetic Pole, and stating, as the result of investigations he had carefully made, that the lines indicated by the compass needle throughout Australia converge approximately towards a point situated in Lat. 74.30 S. and Long. 125° E., which differed materially from the position assigned for the South Magnetic Pole by Captain L. J. Duberry, a noted French hydrographer, and also by Sir J. E. Ross and Sir Fred. Evans. Mr. Harris stated that the position he had indicated as reliable is based upon the declination of the compass at the principal Australian ports and cities, as given on the Admiralty charts for 1900, and as recorded by the Survey Department of the various States; and that as the observations he has carefully made have been subsequently verified by calculations, in which spherical trigonometry has been employed. He submitted these results to the Geographical Society in the hope that a careful investigation may be made as near as possible to this inaccessible region, to decide whether a centre of Magnetic attraction actually existed there or not. The Council thanked Mr. Harris for his interesting letter, and resolved to forward a copy to the Royal Geographical Society, London.

Mr. Newland stated that he proposed to move at the Special Meeting an amendment of Rules 10 and 15, and that the number of ordinary members be increased from seven to nine.

The President's Address was considered and adopted.

The following officers were nominated for the ensuing year:—

Robert Kyffin Thomas, J.P., President.

Sir Langdon Bonython, Vice-President.

Messrs. S. Newland, J.P., W. P. Auld, G. L. Whitham, W. H. Phillipps, T. Angas Johnson, W. B. Wilkinson, A. W. Dobbie, Rev. Dr. Eitel, M.A., Ph.D., and A. T. Magarey.

Charles Hope Harris, Hon. Member.

T. Gill, J.P., Hon. Treasurer.

Hon. J. Langdon Parsons, M.L.C., and E. H. Newman, LL.B., Hon. Secretaries.

L. H. Sholl and T. W. Giles, Auditors.

ATTENDANCE ROLL.

SESSION 1900-1.

COUNCIL MEETINGS HELD, 7.

R. K. Thomas, J.P.	..	..	..	..	..	..	..	6
*Sir J. Langdon Bonython, J.P.	..	..	..	..	..	..	..	—
S. Newland, J.P.	..	..	..	..	..	..	..	7
W. P. Auld	..	..	..	..	..	..	..	7
W. H. Phillipps	..	..	..	..	..	..	..	2
J. Angas Johnson, J.P.	..	..	..	..	..	..	..	2
C. L. Whitham	..	..	..	..	..	..	..	5
A. W. Dobbie, J.P.	..	..	..	..	..	..	..	4
C. Hope Harris	..	..	..	..	..	..	..	2
Thomas Gill, J.P.	....	..	..	..	..	..	..	7
Hon. J. L. Parsons, M.L.C.	..	..	..	..	..	..	..	5
E. H. Newman, LL.B.	..	..	..	..	..	..	..	7

*Absent from Colony.

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH

A Special Meeting for a proposed alteration of Rules was held on Friday afternoon, May 31st, 1901, in the Society's Rooms, Pirie Street. The chair was taken by Robert Kyffin Thomas, Esq., J.P., President.

SPECIAL MEETING.

Present—19.

Resolved—"That Rule 10 (in the Constitution) be amended by striking out the word "seven," in the third line and substituting therefor the word "nine." Carried.

Resolved—"That Rule 15 be amended by striking out in the fifth line the word "and," and substituting therefor the word "but;" and by striking out in the fifth line the word "not," and in the fifth and sixth lines all the words following the word "re-election."

The Annual Meeting was then held. Present—Robert Kyffin Thomas, J.P., President, Messrs. Newland, Auld, Whitham, Phillipps, Dobbie, Parsons, Newman, Magarey, T. S. Reed, and ten other members of the Society.

The minutes of the last Annual Meeting were read and confirmed.

The Financial Statement was then read, which showed balance from 1899/1900, £4 12s. 5d.

The Receipts for the past year were £133 19s. 6d., and the payments, £136 5s. 6d. Balance in hand and Bank, £2 6s. 5d. The Assets were valued at £2,284 1s. 5d.

The President then delivered his Annual Address, as follows :—

PRESIDENT'S ADDRESS,

By ROBERT KYFFIN THOMAS, Esq., J.P., PRESIDENT.

Since the last occasion on which a general meeting of the members of this Branch was held, the Empire has sustained a grievous loss by the death of Her Most Gracious Majesty Queen Victoria. It devolved upon your President and honorary Secretaries, on behalf of the Society, to convey to His Excellency the Governor an expression of condolence with the King and Royal family, and an assurance of the loyalty of the Society to His Majesty King Edward VII. The last report was dated June 8, 1900, since which date your Council has held seven meetings, and 28 new members have been added to the Society. It is with deep regret that we have to record the loss by death of the late Mr. W. D. Glyde, who was one of the oldest members, and had always taken an active part in our proceedings; also of Mr. Walter Griffiths, Mr. H. Y. Sparks, and Mr. R. J. H. Wills, and, since the Report was drawn up, Mr. A. Simms. It is also with profound regret that the death is recorded of that young but most able explorer, the late Hon. D. Carnegie, who was shot with a poisoned arrow by one of the natives on the Niger in November last. The exploration of Central Western Australia in 1896 was organized by him, and carried out at the expense of a Syndicate. The results of the Expedition, which were given in the work published by him, were of great interest, and showed that he was possessed of unbounded pluck and perseverance in facing constant difficulties from the scarcity of water. His labours were also of special geographical value, inasmuch as he traversed nearly north and south, the routes of previous explorers running in easterly and westerly directions. His death is a national loss. Your Council also regret to note the death of Dr. H. Klonstad, Medical Officer of the Borchgrevink Expedition, whom they had the pleasure of interviewing in Adelaide when on his way to Europe in May, 1900. Three papers were read during the winter session at the Stow Lecture Hall, Flinders Street. On July 23 the Rev. Dr. Eitel, M.A., Ph.D., gave an able and timely address "On China and the Far East;" on August 27 a paper by the late Hon. S. Tomkinson, M.L.C., "On an Adventure in the First Steamer Trip through the Murray Mouth," was read on his behalf; and Mr. Thomas S. Reed, Assistant-Secretary, lectured "On Totems, or Animal or Nature Worship; its Universality and varied developments."

THE LIBRARY AND MUSEUM

The Library and Museum of the Society have received numerous

additions during the year, for which the grateful thanks of the Society to the donors are due. The Society is particularly indebted to the late Premier, the Hon. F. W. Holder, for some valuable manuscripts in reference to the early exploration of Australia. They were discovered in the archives of the Lands Department of New South Wales, and forwarded to the South Australian Government, who have handed them to this Society on the understanding that they shall be exhibited in the Public Library until the Society has permanent rooms of its own. They consist of two letters (written in 1844) from Mr. Edward John Eyre to His Excellency Sir George Gipps, Governor of New South Wales, offering to lead an exploring expedition into the interior of the continent, and two letters from Sir George Grey, Governor of South Australia, to Sir George Gipps, in reference to Captain Sturt's exploration and his supposed discovery of an inland sea. These letters are too long to include in this address, but they will be published in full in the next issue of the Society's "Proceedings." They are of special interest and value, because of the early associations with this State of Mr. Eyre. His memorable journey to Western Australia proved him to be an intrepid explorer, and his conduct as Protector of Aborigines on the Murray show that he was a man governed by principles of humanity and justice. Mr. Eyre is still living in England, and your Council will, with your approval, take the opportunity of conveying to him the assurance that his services are still held in grateful remembrance in South Australia.

ADDITIONS TO THE LIBRARY.

Thirty-five volumes have been added to the Library, as well as other valuable publications, which will be acknowledged in the Appendix. Mr. J. Le M. F. Roberts presented a valuable relic in the shape of a canteen, which was used by one of the late McDouall Stuart's party in one of his expeditions, and which the donor found in the interior. To Mr. Thomas Gill the Society is indebted for a framed photograph of the late Mr. Ernest Giles, explorer, and for a photograph of Frenchman's Rock; a pair of death shoes was also presented by Mr. Robert Bruce. Two other gifts are of special interest. A framed copy of "The Adelaide Observer" of January 3, 1863, containing the diary of John McDouall Stuart, made in his journey across the continent, was presented by the proprietors of that paper. It was found a few years ago near Mount Phillipson, 400 miles from Port Augusta, wrapped in the bark of a tree. A copy of "The Register," in which the discovery was recorded, accompanied the gift.

LIBRARY ASSOCIATION OF AUSTRALASIA.

In July last your Council was invited by Mr. J. G. R. Adams,

Librarian of the Public Library, and acting as Honorary Secretary of the Library Association, to co-operate in a series of meetings to be held in the month of October in conjunction with the sister Societies of Melbourne and Sydney. Your Council were asked to lend any objects in their possession in the form of old trace books, manuscripts, maps, old historical relics, &c., a request with which they gladly complied. The meetings, which were of great interest, were inaugurated by a *conversazione* held at the Elder Conservatorium Hall on Tuesday evening, October 6. This was followed by a series of conferences, at which very valuable papers were read dealing with matters relating to libraries and institutes and general historic literature. Under this head, your Council would especially refer to a lecture delivered by Professor Morris, of the Melbourne University, "Captain Matthew Flinders, the Great Explorer." The biography then given was of deep interest, comprising many details hitherto unpublished, and therefore not generally known.

THE FLINDERS CENTENARY.

All students of early Australian history are aware that in the early part of last century two celebrated navigators were ardently engaged as explorers on the South Australian coast—one, Captain Matthew Flinders, of glorious memory, left mementoes of his voyage in the *Investigator* at Port Lincoln; the other, the scarcely less famous Captain N. Baudin, of *Le Geographe*, whose visit is chronicled at Hog Bay, Kangaroo Island. But of the meeting of the two great commanders in our waters no record exists on our coasts, although no event in our history is of greater interest. Your Council, having long felt that this omission should be rectified, determined that some lasting memorial should be erected near the spot where the meeting took place. As Flinders's log shows, the commanders met on April 8, 1802, in the wide indent in the coastline into which the River Murray empties itself, now known as Encounter Bay, and so named to commemorate that event. We can well imagine the rivals, friendly relations having been established, discussing what the great bay should be called, and possibly agreeing about the name. At any rate, we know that Flinders thought it appropriate to the occasion. At that time France and Britain were at war; indeed, in those days they were rarely at peace, and for the French and British ships to sight each other was to prepare for action. This memorable occasion is said to be no exception; and, as the vessels approached each other, the decks were cleared in anticipation of the worst. It was, however, no doubt felt by both commanders that, being so remote from the old world and engaged in peaceful exploration

of the new, they might well sink hostilities and meet as friends. We, as pioneers and possessors of Australia, may heartily congratulate ourselves that this was so, and that no blood of hostile nations was shed in obtaining our noble inheritance. At a meeting of the Council of the Society on December 13 last it was decided that an inscription cut on a rock on the summit of Rosetta Head, better known at "The Bluff," directly overlooking the bay where the Investigator and the Le Geographe lay side by side, and where Flinders and Baudin conferred together, would be the most fitting form the proposed memento could take; and Mr. Newland and the Assistant-Secretary, Mr. Reed, were appointed to select a suitable rock for the inscription. These gentlemen report having found a rock on the crest of the headland which they consider in every way suitable. Your Council, through the President and the Hon. Treasurer, approached the late Premier, the Hon. Mr. Holder, who graciously promised to defray the cost of cutting the inscription. It is thought that a convenient and fitting time to commemorate the historical event will be the beginning of next year, a century after the famous navigators and explorers met and parted on their memorable voyages. When the rock is inscribed with the names of the great men and the event referred to it will be an object of interest to the present and future generations.

FRENCHMAN'S ROCK, HOG BAY.

In August last your Council addressed the Premier, recommending that this rock be enclosed by an iron fence, and that the Agent-General in London should be asked to enquire whether some transparent and preservative composition was obtainable, such as they believed was used in preserving the Cleopatra's Needle, Parliament Houses, and Westminster Abbey, which would resist the action of sea spray. It is to be hoped that some preparation will be found to prevent further erosion of the rock; otherwise it may be necessary to remove the stone from its present exposed position.

THISTLE ISLAND.

In August last His Excellency the Governor forwarded a letter he had received from Mr. T. H. Peet, now residing at Harrow, Victoria, with reference to some old ruins and an inscribed stone he had seen many years since at Thistle Island, a letter which I regard of sufficient interest to read in extenso:—

Harrow, Victoria,

July 18, 1900.

To His Excellency the Governor of South Australia.

My Lord—

In the year 1838 I was an employe of the South Australian

Company at their whale fishery, Thistle Island, Spencer's Gulf, and while I was there I discovered the walls of three stone buildings erected close together, of different sizes, and about 5 feet high, and built without mortar, each of them having an opening for a doorway. At the doorway of the largest building was a stone let into the ground and level with the floor of the building, on which were the figures 178 ; there had been another figure close to the 8. I pointed them out to the master of the fishery and several of the employes, all of whom believed they had been erected by the sealers. My opinion was that they were erected by the crew of some shipwrecked vessel, and I am of the same opinion still. One of the reasons that caused me to form this opinion was that if they ever had roofs on, it must have been made of the spars and sails of a ship ; for, if the roofs had been made of anything else and then burnt, the nails used in their erection would be found on the floors, on which I spent many hours looking for them, but did not find any. Previous to the year 1788, there were not any vessels in that part of the world ; but during the above year Governor Phillip, with his fleet of five vessels and upwards of a thousand souls arrived to form the penal colony of New South Wales, and shortly after his arrival La Perouse, with his two discovery vessels, sailed from Port Jackson, and was never heard of until 40 years afterwards, when Captain Dillon discovered that they had been wrecked on the Island of Mannicolo, and that their crew had built another vessel of the wrecks and left the island. Since then they have never been heard of. If La Perouse found that he could not reach the place he wished to do, he would very likely try to reach Port Jackson, where he could obtain anything he was in need of. I have always been of the opinion, since leaving Thistle Island that if the stone with the figures cut on was turned over, we would know something about Le Perouse after he left the island in his ship. My object in writing to your Excellency is to ask you to take the necessary steps to have the stone turned over. I will state how the buildings can be easily found :—Anyone following the coast from the fishery towards the south end of the island must see them if he travels about three or four miles.

Upon receipt of this letter, your President wrote to a resident on Thistle Island, Mr. T. R. Tapley, acquainting him with these particulars, and requesting him to kindly visit the locality referred to and communicate the result to this Society. Mr. Tapley spared

neither time nor trouble in this matter, and reported that he discovered the buildings referred to, but that while he unearthed all the stones in the doorways, he could see no marks or numbers on any of them.

ERNEST GILES'S GRAVE.

In August last the attention of your Council was called to the neglected condition of the grave of the late Ernest Giles, explorer, in Coolgardie. A copy of this letter was forwarded to the Premier of Western Australia, calling his attention to the matter. Sir John Forrest replied, stating that his "Government would gladly erect a headstone over the grave of the late Ernest Giles." At a subsequent meeting of your Council it was resolved that the Premier of the adjoining State be thanked for his consideration and prompt reply, and that in the opinion of this Council the form of the memorial should be left to his Government. It is gratifying to remark that since this meeting, a member of our Council, Mr. C. L. Whitham, when on a visit to Coolgardie, took the opportunity of inspecting and photographing the monument in question, which he regards as a very handsome memorial.

CENTENARY OF MOUNT GAMBIER.

One hundred years ago Lieut. Grant was exploring the coast in the Lady Nelson, a vessel of 60 tons burden, when on December 3, 1800, he sighted Mounts Gambier and Schanck. In the winter of 1900, Mr. T. Gill, Hon. Treasurer of this Society, wrote to the then Mayor of Mount Gambier, Dr. C. C. McDonald, suggesting that some action should be taken to commemorate the centenary of the discovery made by Lieut. Grant. The doctor warmly entered into the movement, and formed a Committee of influential townsmen, who worked hard for the object in hand. After much consideration it was decided that a look-out tower on the highest point of the Mount would be the most suitable memorial that could be erected, and the promise by the Government of a telescope to be placed in the tower weighed not a little with the Committee in making their decision. A number of plans were sent in for consideration, and finally one drawn by Mr. C. Seigmund was selected. It is in the form of a tower both artistic and substantial, and well calculated to stand the wear of time and weather. A firm base was laid during the month of November, and on December 3 the foundation-stone was laid by the Lieutenant-Governor, Sir S. J. Way. Although the general public had taken but little interest in the work of the Committee, they assembled in great force on this occasion, and although the day was very boisterous, there were about 450 people, besides 300 school children on the top of the Mount, when Sir Samuel Way laid the foundation-

stone. On this stone, a block of dolomite (of which material the whole tower is to be built) is the following inscription :—" In commemoration of the discovery and naming of Mount Gambler on the 3rd December, 1800, by Lieut. Grant, R.N., commanding H.M.S. Lady Nelson. Foundation-stone laid by Lieutenant-Governor, the Right Hon. Sir Samuel James Way, Bart., Chief Justice of South Australia, on the 3rd December, 1900." The document placed in the cavity in the stone sets out the facts above stated. I understand that contributions are urgently needed to complete the tower.

RECORDS OF EARLY HISTORY.

From time to time the desirableness of forming an historical branch, to be especially charged with the collection and collating of historical records, has been considered by the Society. Ten years ago a section of this Society was established to deal with historical and ethnological matters, but it was then found impracticable to carry on the work. The duties with which such a branch would be charged have not, however, been overlooked by your Council. Numerous additions have been made to the records of the Society, and its Museum has been enriched by treasures of unique value. Your Council, however, recognize that what has been done, although important, is inadequate. They have been confronted with great difficulties in their attempt to add to the storehouse of knowledge in reference to the early history of the State. Many of our old colonists, now so rapidly passing away, can afford and are always ready to give in private conversation information of the utmost value and greatest interest. They are, however, often from a creditable modesty unwilling to relate their experiences in public, or to write them for publication. An effort should, in the opinion of your Council, be made to overcome their reluctance, by asking some of our pioneers to put the more notable of their early experiences into writing. A selection could then be made for publication in the "Proceedings" of the Society, and in all cases the manuscripts would be filed for future reference. Your Council hope that this suggestion will meet with a voluntary response from old colonists, and that during the coming year the records of the Society may be enriched by valuable contributions. It will be a source of pleasure to your Council if in this matter they are able to secure the co-operation of the Old Colonists' and the Australian Natives' Association, whose aid they propose to solicit.

ENCOURAGEMENT OF SCIENTIFIC RESEARCH.

In commemoration of the eminent services by Mr. J. P. Thomson, the Queensland Branch of the Society, of which he was the

founder, has instituted "The Thomson Foundation Medal," to be awarded periodically to the author of the best original contribution to geographical science. Your Council were appealed to for assistance, and were enabled through the generosity of one of your members in providing the greater part of the amount, to send a contribution of £8 8s., thus marking in a practical way their approval and sympathy with the scheme. Two medals are to be awarded this year for papers on (1) "The Commercial Development, Expansion, and Potentialities of Australia, or (briefly put) the Commerce of Australia," and (2) "The Pastoral Industry of Australia: Past, Present, and Probable Future." Competitive essays are to be sent to Brisbane not later than October 15 next.

STATUES TO EXPLORERS AND PIONEERS.

Your Council are glad to see that the Caledonian Society has initiated a movement for the erection of a statue of Mr. John McDouall Stuart, the first explorer to traverse the Australian continent from south to north. It is a reproach to the City of Adelaide and to the State of South Australia that there is no worthy memorial of Colonel Light to whom so great a debt of gratitude is due, and that nothing has been done to commemorate the eminent services of Captain Charles Sturt, Mr. Edward John Eyre, Mr. J. McDouall Stuart, Colonel Warbuton, Mr. John McKinlay, and other explorers in the opening up of the wilds of Australia. The Council trust that, by the liberality of the public and the aid of the State, this reproach may soon be removed.

ETHNOLOGICAL EXPEDITION.

In the address of our late President, Mr. Newland, in June, 1898, he spoke very strongly on the necessity of urging upon the Governments of the several colonies the desirableness of taking immediate action in collecting all available data in respect to the life, habits, and the ethnological traits of the fast-vanishing native tribes. In harmony with a resolution passed by the Council on this subject, on August 25, 1898, a letter, signed by Mr. Newland as President, was sent to the Premier of this colony to this effect:—

Sir—At the request of the Council of this Society I have the honour to call your special attention to the lamentable fact that several of the native tribes of this province are either extinct or rapidly dying out, whilst no attempt is being made to preserve or obtain records of their language, habits, customs, physical appearance, and characteristics, including their ethnological and dental characters. The Australian aborigines—more particularly the inland tribes—are classed with the Andamaners as probably the most primitive or low-

est in the scale of civilization of the human race, possessing few traditions, and having apparently no idea of their origin. Content to live the merest animal life, it is possible that they may have existed for many centuries; still there is much yet to learn respecting their peculiar customs. Whilst the opportunity exists, I would respectfully urge upon your Government the importance of immediate action in collecting all possible data of the tribes living within the boundaries of this province, and the figures and types of each tribe should be secured on a physiographical basis of preservation. Much valuable information has without doubt been irrecoverably lost; and it is fortunate we have in print a few vocabularies, also an account of the Narrinyeri tribe (all of which, I am pleased to record, have been published by the South Australian Government). But these do not conform to the scientific requirements of an ethnological work on the South Australian aborigines. It is understood that qualified and scientific men in each colony are willing and desirous of gratuitously undertaking the preparation and editing of a comprehensive work on the aborigines, if the Australian Governments will incur the cost of publication. The Government have it in their power to assist materially by permitting officers in certain districts to collect data on specially prepared forms, and the time required to fill up the return would not interfere with their respective duties. It is also suggested that the Government photographers be authorized to photograph such typical natives, weapons, &c., as may be presented to them. By these means a valuable scientific work on the ethnology of the aborigines of Australia would be produced at a comparatively trifling cost, the only immediate expense being the printing, postages, and photographing. Its publication would be a matter of subsequent arrangement. The Royal Society and this Society will gladly assist in every way in their power.

FURTHER AUSTRALIAN EXPLORATION.

A copy of this letter was subsequently sent to the Geographical and Royal Societies of Victoria, New South Wales, Queensland, and Tasmania, some of which responded in terms of sympathy and co-operation. It is a source of deep gratification to your Council that the public interest in this important subject has been awakened, not only in Australia, but in the mother country. The English scientific societies made a request to the Victorian and South Australian authorities to release Professor Spencer of the Melbourne University and Mr. Gillen from their official duties with

a view to the continuance of their ethnological researches through the centre of the Australian continent to the Gulf of Carpentaria. This permission was readily granted by each of the foregoing Governments, and these gentlemen are now engaged in their important work. The Victorian Government are paying the salary of Professor Spencer's substitute, and the South Australian Government have granted leave of absence to Mr. Gillen on full pay. The cost of the expedition is being borne by Mr. David Syme (proprietor of the Melbourne "Age") and Mr. Reuben Spencer, of Manchester, father of Professor Spencer, the former contributing £1,000 and the latter £500. The two explorers started on their journey on March 15 last, and on the previous day a meeting of this Council was held at the Society's Rooms to bid them farewell. Telegrams which have appeared in the public press show that the expedition is already at work, and that important records have been obtained by the cinematograph and phonographs.

A further expedition has been organized and equipped by Mr. R. T. Maurice with the intention of thoroughly exploring the area of country north-west of Fowler's Bay and Rawlinson, Tomkinson, and Peterman Ranges, and the lakes and rock holes in the south. Mr. Maurice has had extensive experience in explorations which he has conducted at his own expense. He crossed over to Kimberley, in Western Australia; on another occasion he went to the Northern Territory in order to find the tin box planted by John McDouall Stuart. He has also explored the MacDonnell Ranges for anthropological purposes, besides making numerous journeys in the country north-east and north-west of Fowler's Bay, nearly the whole of which area he correctly mapped. Furthermore, he discovered and located numerous unknown rock waterholes and a permanent spring at Waldoora, situated in the centre of the sandhill desert hitherto supposed to be inaccessible, and for many years Mr. Maurice, in conjunction with Mr. Charles Winnecke, has collected valuable biological and other specimens which Professor Baldwin Spencer has undertaken to classify. The Government accepted the kind offer of Mr. Maurice to take Mr. Murray, of the Mines Department, who was a member of the expedition led by the late Captain Hubbe from this State across to Western Australia, and subsequently accompanied the Government Geologist in a trip to the north and north-east of Fowler's Bay. As these two explorers will devote their attention not only to general features of the ground they cover and to search for minerals, but also to the habits of the native tribes, the results of their labours should be of great value. Your Council records with pleasure the fact that Mr. Murray has promised to keep a journal in the form laid down by this Society.

CENTRAL AUSTRALIAN EXPLORATION.

A still further expedition was equipped and sent out by a large and influential London syndicate for the purpose of exploring and prospecting the central area of this State, under the leadership of Mr. Allan Davidson. The party first visited and prospected the Murchison Ranges, and subsequently the country west of Kelly's Well, Hooker's Creek, and then onwards as far as the Western Australian border. Mr. Davidson has kindly prepared a paper, which will shortly be read at a meeting of this Society.

BRITISH NATIONAL ANTARCTIC EXPEDITION.

The course of the British National Antarctic Expedition, which will leave England shortly, will be watched with the greatest interest. It will be under the command of Captain Robert B. J. Scott, R.N., with Lieut. Armitage as second officer. The expedition will be conveyed to the antarctic regions in the "Discovery," a vessel built specially for the purpose at a cost of about £4,500, and which was launched at Panmure, Scotland, on March last. A Scottish antarctic expedition will also set out in the coming autumn under the leadership of Mr. W. S. Bruce, who will take with him trained scientists to carry out the work of exploration. Besides these, a Swedish expedition is in full course of equipment. At Kiel also a ship has been recently launched to convey to these regions a German expedition under the guidance of Dr. von Drygalski and a number of scientists. The vessel was christened the Gauss, after the well-known scientist, who is said to have been the first man to suggest the exploration of the South Polar region; and as she, in addition to experienced officers and crew, will be provided with every possible arrangement and facilities for scientific work, important results from this expedition also may be confidently looked for. With reference to the subject of the antarctic exploration, the attention of the Council has recently been called by Mr. Charles Hope Harris, one of its members, to the probable existence of a magnetic pole situated approximately in lat. 74 deg. 30 min. S., long. 125 deg. E., such a position being implied by the intersection of lines of magnetic declination throughout the greater part of Australia. A letter giving full particulars has been forwarded to Sir Clements Markham, President of the Royal Geographical Society, accompanied with the request that an examination of the locality may be made if practicable.

The balance sheet showed that the income for the year amounted to £133 19s. 6d. After paying all expenses there was a balance in hand at the end of the year of £2 6s. 5d.

On the motion of Mr. T. Duffield, seconded by Mr. H. Y. L.

Brown, the President's Report and the Balance Sheet were adopted.

The following officers were elected :—President, Mr. R. Kyffin Thomas; Vice-President, Sir Langdon Bonython, M.H.A.; members of Council, Messrs. S. Newland, W. P. Auld, C. L. Whitham, W. H. Phillipps, J. A. Johnson, W. B. Wilkinson, A. W. Dobbie, and A. T. Magarey, and the Rev. Dr. Eitel; hon. member, Mr. C. H. Harris; Hon. Treasurer, Mr. T. Gill; Hon. Secretaries, the Hon. J. L. Parsons, M.L.C., and Mr. E. H. Newman. Messrs. L. H. Sholl and F. W. Giles were appointed Auditors.

On the motion of Mr. J. Edwin Thomas a vote of thanks was accorded the President, officers, and members of the Council for their services during the year. The Hon. J. L. Parsons responded, and urged the members to make an effort during the coming year to increase the membership of the Society. He paid a tribute to Mr. T. S. Reed, for his valuable services as Assistant-Secretary.

A Special Meeting, which had been called at the request of Mr. S. Newland, was held for the purpose of making certain alterations in the Rules. On the motion of Mr. Newland, it was resolved to increase the number of members of the Council from seven to nine. It was also decided that the two members of the Council who retired each year in accordance with the Rules should be eligible for re-election. Notice of motion for a general revision of the Constitution and Rules was given, and the President intimated that the matter would come up for discussion at the next Annual Meeting.

A vote of thanks was passed to the officers of the Society, and the Hon. J. L. Parsons replied on their behalf. He congratulated the President on his able address, and he paid a tribute to the energy and ability which Mr. T. S. Reed, the Assistant-Secretary manifested in his work.

P A P E R S

READ BEFORE THE

**Royal Geographical Society
of Australasia.**

FOURTEENTH SESSION, 1900-1.

SOUTH AUSTRALIAN BRANCH.

China and the Far Eastern Question.

By Rev. Dr. EITEL, M.A., Ph.D.

Read July 23, 1900.

I have to thank the President and Council of the South Australian branch of the Royal Geographical Society, for the honour they have conferred on me, in requesting me to address the Society once more on the subject of China. But I must repeat what I told your Secretary, when he conveyed your invitation to me, viz., that I do not feel competent to deal with the subject of China, which the Council suggested, with the confidence of an authority or expert. I have lived among the Chinese 35 years. I have, all that time, been engaged in studying the language, the literature and philosophy of ancient and modern China, but I am neither geographer, nor politician, nor Chinese expert sufficiently to teach the members of the Royal Geographical Society. If I have learned anything at all in China, it is this, that we Europeans, when we have learned of China all we can learn, know after all very little, that is reliable, about the Chinese as a people. The subject is inexhaustible. The difficulties are immense. Their intellectual genius is different from ours; their moral temperament is different; their civilization is different; their social organization is different. There is a mental, moral, and social gulf, unbridged at present and perhaps unbridgeable, between the Chinese on the one side and all European nations on the other side—a gulf which makes a true, full, and accurate understanding extremely difficult for both parties.

I make this confession of ignorance, not merely as a matter of modesty, but particularly also to caution you not to judge the Chinese nation and their doings without making due allowance for the fact that we know very little about the inner workings and motives of this strange people. In view of this imperfection of our knowledge of China, I must likewise ask you to accept the observations I am about to offer, as suggestions intended to furnish matter for debate rather than a solution of that problem in political geography which is involved in the subject of this lecture, viz., China and the Far Eastern Question.

The first point for consideration, therefore, is China, that is to say, the country, the people, and the Government of that Central Kingdom which poses before the world as the Celestial Empire.

From a Chinese point of view the territory of China Proper forms the centre of the inhabited world, specially created and designedly laid out by Providence as that part of the world where the sun rises, that is to say as the focus, from which were to radiate the concentrated luminous rays of civilization and good government, that were to illumine the benighted barbarian countries in the remaining portions of the world. The central portion of this favoured land, the country between the two great rivers of China, the Hoang-Ho in the north and the Yang-tsze in the south, forms the terrestrial reflex of the Milky Way in the heavens. The five sacred mountain peaks of China are the earthly counter-types of the five planets of the universe. The Emperor of China is on earth what the sun is in the heavens, and his officials are the stars of the mundane firmament. Now, for the purpose of aiding the fulfilment of this great world-wide mission, China was securely walled in on all sides by nature : by the Pacific Ocean in the east, by chains of well-nigh impassable mountains in the south and west, and by steppes and deserts in the north, which latter boundary the First Emperor had to supplement, by Heaven's command, by building in the north the so-called Great Wall. Thus, say the Chinese, the very situation assigned by Providence to China, as heaven's vicegerent on earth, emphasized the Divine injunction, that strict isolation, rigid exclusiveness, was to be the primary law for China. From China, as the central kingdom of the earth, were to go out all those civilizing influences on which the weal of a benighted world depended, but this centre of celestial light and government itself was to be jealously guarded against any unhallowed intrusion of influences emanating from the surrounding fringe of outer barbarians.

This is a view of political geography that may appear ridiculous to most of you. And yet, I must say in passing, I have never yet met a typical Englishman who had not virtually the same notions regarding his own country, viz., that England is the centre of the world's civilization, that its insular position has, in God's Providence, made Great Britain what it is, determined the national character, and given the Divine command to Britannia to rule the waves. Be that as it may, to the Chinese mind at any rate, it is perfectly reasonable to assume that, as the peculiarities of the physical frame of each man determine, to a large extent, the course and events of his life, so the geographical situation and structure of their own country formed the leading elements in

the evolution and historic progress of their nation. To the Chinese geographer, neither the heavenly bodies nor the earth are mere dead matter, set in motion some how from without, but they are all uniformly pervaded and carried on by the continuous force of the vital breath of living nature: they are all working out their several destinies, so much so, that the individual oceans, rivers, mountain ranges, and so forth are in reality as many distinct organs of nature, each endowed with its own appropriate functions, to be utilized by the nation in working out its destiny. Thus China's mission is to act as steward over the natural endowments of the central kingdom, for the purpose of enlightening and governing the rest of the world, and jealously to guard against desecration by the outer barbarians the sacred precincts of the Celestial Empire. When, therefore, foreigners come and knock at the gates of China in any other capacity than as loyal tribute-bearers, or as humble seekers of light, it is a sacrilegious violation and reversal of the fundamental laws of nature, which touches the Chinese nation on the raw.

I have spoken of the country. Let me add a few words as to the national characteristics of the people. When the ancestors of the Chinese, some 5,000 years ago, first took possession of this country, and entered upon their celestial mission, they brought with them from Central Asia a peculiar politico-religious system tinged with Semitic ideas, and based on the conception that, what heaven is to the earth, that is the prince to his people, the prince being both the son of heaven and the father of men. To them the laws of nature formed the unwritten laws of the State. According to this patriarchal way of thinking the Chinese people are but children, minors under the perpetual tutorship of their ruler. But we must not run away with the idea that this curious patriarchal system, giving the ruler virtually Divine authority, involved anything like that absolutism of autocratic government which the European mind so readily associates with the Divine right of kings. Far from it. If the law and constitution of the State are but a transcript of the laws of nature, it is equally criminal for the ruler as for the people under his rule, to violate these laws. If it is a divinely imposed duty of the people to obey the Government, that duty implies also, as its natural corollary, the divine right to be governed in accordance with the mind of heaven. Right government evidences itself, according to this Chinese system, by the happiness of the people, flowing from the personal character of the ruler. Conversely, unhappiness of the people is a clear proof that the person of the ruler has incurred the condemnation of Heaven. In such a case it becomes then the divine duty of the people to depose

him unless he resigns. This divine right of rebellion, which is plainly taught even in the elementary school books of China, makes of course the ruler responsible to the people, and gives to the constitution of the Empire a markedly democratic aspect. But, while it exalts the people as a whole, it merges the individual in the family, and the aggregate of families in the state, to an extent which destroys the growth of individual self-consciousness. This tendency to suppress individual spontaneous activity, and to build up in place of it a loyal national consciousness, is the leading element in the whole system of Chinese education. This peculiar educational system seeks principally to impress each scholar with a solemn sense of his own atomic insignificance as but a mite in a grand scheme in which heaven and earth, the state and the family are the only real factors ; a scheme in which there is no room for individual rights or personal liberty ; a scheme in which originality is vice, in which individuality is but a subordinate modest expression of filial piety and loyalty. In short, self-abasement, coupled with reverence for parents and elders, with submissive devotion and fidelity to the State, is the whole duty of man in China.

As a natural result of this peculiar system of training in a people isolated for thousands of years, we find the national mind of China differs widely from the ways and habits of thought common among European nations. The European mind, sharpened by successive crossings of different nationalities, and tutored by a variety of opposing philosophical systems, has attained to a feverish state of intellectualism in thought, and to a disintegrating condition of individualism in morals, entirely foreign to the Chinese mind. The Chinese are mentally, morally, and socially what they were 3,000 years ago. It is a case of arrested development. The Chinese nation is a child whose growth in mind and feeling has been stunted. But we must not forget, that physiologically the grown-up man is really not any more perfect than the child. The adult form is not more highly developed than the infantile form. From the point of view of adaptation to environment, it is undoubtedly true that the grown-up man is better fitted to make his way in the world, but from a physiological point of view we witness in the adult, compared with the child, anything but progress. Let us apply this comparison to the case of infantile China. Compared with European nations the Chinese are on a low level of intellectual and moral activity. True, but the Chinese are nevertheless not lacking in brain power, nor in liveliness of conscience, and they excel Europeans in muscularity. China is brimful of mental and moral energy, a tremendous multitude of 250 millions of beings whose

muscles and sinews are toughened by toil, uncorrupted by drink, unaffected even by opium, people whose nervous fibre and brain is not lacerated by the European habit of living at high pressure. It is true that the Chinese national character is weighed down by a dead level of uniformity, that an outward maintenance of traditional etiquette covers atrocious sins of inward corruption evidencing a very low level of morality. It is also true that the universal reign of utilitarianism in China stifles the growth of all ideal tendencies. But this defect of character is, to a large extent, balanced by an assimilative power, by a strong organizing instinct of co-operation, by a national feeling of clannishness, which gives to the Chinese nation its cohesiveness, and enables the Chinese, wherever they be, to present a united front against opponents. It is owing to this force that the 250 millions of Chinese are all one compact coherent organism. The individual is nothing. The family is the unit of society. And the families and clans of China are all bound together by the one creed of their ancestors, by the oneness of blood and descent, by the unity of language, literature, feeling, and thought. They have no patriotism in our sense of the word, but they have a strong sense, sadly wanting in Europeans, a sense of corporate unity and corporate responsibility. They care not who rules them, provided they can believe that their ruler is appointed by Heaven's decree, but they hang together by joints and bands which defy misrule and tyranny. Their country has been invaded and overrun by almost every nation of Eastern Asia, but, bending meekly under the rule of the invaders, the Chinese nation has in each case swallowed up and assimilated their foreign rulers, and remained integrally one as before. Apart from the Jews there is not another nation in the world that has preserved its homogeneity unimpaired for the last 3,000 years, as China has done by mere passive resistance. Compared with China every existing nation on earth is but of mushroom growth. That singular isolation, that passive exclusiveness, and that very want of heterogeneity which constitute the principal characteristics of Chinese national life, has been the cause of the apparent atrophy, of the stunted growth, of the arrested development of the nation. But it is not a case of decrepitude. There is no corruption of the vitals of the nation. However corrupt its officialdom, administration and executive government may be, the nation itself is sound to the core.

That the mass of the people is in a healthy condition, abounding in life and vigour, is evidenced by that assiduous persistence in labour, combined with a minute fidelity in details, which forms such a strong contrast between the European and Chinese work-

ing man. It is true that this passion for work deprives the Chinaman of all sense for the poetry and refinements of life. It is true that this absorption in details prevents his attaining to any originality of inventive thought. But this character trait of plodding industry has largely contributed to make China the one great nation in the world which, after outgrowing the nomadic and the purely agricultural stage, has reached the industrial stage, and has hitherto remained there content, refusing until quite lately to enter the next stage, in which all European nations that now thunder at the gates of China are entangled—that of militarism. And, mark my words, the Chinese are not far wrong if they regard this boasted glory of European civilization, this rampant militarism of ours, as the commencement of degeneracy, as a return to barbarism.

I have given you my thoughts about the Chinese people. I will add a brief sketch of their recent political history. The last native Chinese dynasty, called Ming, that ruled the destinies of the Celestial Kingdom collapsed in the year 1644. Since that time China's millions and her tributary States have been governed by Manchus. The successive reigns of nine Manchu sovereigns cover the whole of this long period of 256 years, for the reigns of two of them exceeded in duration even the reign of Her Majesty Queen Victoria. This Manchu dynasty, named Tsing, has successfully maintained its hold upon the Chinese nation through continued collisions of central and local interests. Introduced by native feuds, the Manchus obtained the mastery by playing off one political party in China against the other, by accommodating their policy to the sway of the leading principles of the Chinese body politic and by organizing the best possible form of government, by means of an equitable division of all the higher offices between the two races, Manchu and Chinese, and by a wise treatment of all traditional Chinese customs and titles. Becoming thus thoroughly Chinese, as regards their mode of governing, while retaining in the privacy of their own homes distinctly non-Chinese, i.e., foreign habits of life, the Manchu rulers, supported by Manchu garrisons located in the centre of every large city in the Empire, rapidly pacified the conquered empire and successively consolidated the State. Nevertheless, throughout this whole period of 256 years of stable government, the Chinese Empire has never been free one single decade from local disturbances and rebellious upheavals, fomented by an irrepressible network of secret societies, which would have been the ruin of any Empire of less cohesive power. But the remarkable thing is that these rebellions and secret associations, which continually assailed the Manchu government, never aimed

at a change in the political constitution, never sought national disunion. All they strove for was to substitute a Chinese for the Manchu ruler, but not to abolish imperialism. On the occasion of the last rebellion the rebels had for years almost entire possession of the southern half of the Empire, and the leader of the Taiping rebels had already established his throne in the central part of China, in the ancient capital of the Empire, at Nanking, in the year 1852, when, through European interference, the Manchu dynasty was saved from its plainly impending doom. It was chiefly through the help given to the Imperialists by General Gordon and his Ever-Victorious Army, a composite force consisting of foreigners of all nationalities, that the Taiping rebellion was suppressed. There was at that time a conflict of opinion among Europeans in China. The missionaries looked upon the Taiping rebellion as the means of the regeneration of China. The European merchants saw in the Taiping rebellion only an unbearable interference with trade, and accordingly they petitioned their respective Governments to discountenance the rebels and to support the Manchus. General Gordon, subsequently, regretted his share in the transaction, as he told me himself, and declared that he had come to the conclusion that the Manchu Government is the ruin of China. But this European interference with a popular revolution has worked irreparable mischief. The opium war of 1841, the treaty of Nanking forced upon China at the point of the bayonet in 1843, the Arrow War of 1856, the North China War of 1859 including the capture of Peking and the Tientsin Treaty of 1860, and the opening of an increased number of maritime ports to foreign trade, all might have been forgotten and forgiven by a long-suffering nation. But the defeat of the national cause through the suppression, by European arms, of the Taiping rebellion, continued to rankle incessantly in the breast of all Chinese patriots and filled the national mind with increased hatred against all foreigners, whether merchants or missionaries, as implous political agitators and mischief-makers, wantonly interfering with China's sacred law of isolation.

While the European powers, by countenancing the Manchus in preference to the Taiping rebels, drew upon all foreigners in China the wrath of the Chinese nation, and especially of the secret societies, the Manchu Government showed no gratitude whatever for the saving hand extended to them in their hour of peril. On the contrary, recourse to arms was necessary, and Peking had to be occupied by an Anglo-French force, merely to induce the Manchus to abide by their treaty stipulations. Now, when on that occasion, in the year 1860, the Emperor Hien Fung

fled from Peking, and died shortly afterwards, in 1861, a remarkable woman came to the front, who is at the present day more talked of than any one else in China. Possessed of the most cunning duplicity and of a wonderfully strong will, she has, ever since 1861, directly or indirectly, guided the affairs of State, and, until the present moment, with apparent success, and so far with personal impunity, carried on the old Manchu game of devilry, playing off one Chinese political party against the other, and working upon the mutual jealousies of the several European Powers, to set them at loggerheads one with the other, on the principle of "divide et impera." I mean that august lady, who so amiably accepted the present of a Bible and who is chiefly responsible for the Peking Massacre and its unspeakable horrors, that terror in petticoats, the Empress Dowager Tszu Hsi. The history of Peking politics since the last forty years is her history. In that political crisis of 1860 and 1861 it was this redoubtable woman who, in concert with the widow of the Emperor Hien Fung, and assisted by the latter's brother, Prince Kung, effected a brilliant coup d'état, by which the two ladies became joint Empresses Regent, with Prince Kung as Prime Minister, while the infant son of the famous Dowager Empress, Tszu Hsi, was proclaimed heir to the dragon throne under the style of Tung Chih. It was under her government that the notorious Tientsin massacre, the gentle prelude of the recent blood bath of Peking, occurred in 1870. She succeeded in glossing it over, sent Ambassadors to Europe and America, and pretended to be favourable to European intercourse with China. When Tung Chih attained to majority, she nominally permitted him to assume the government, and when thereupon the foreign Ambassadors clamoured for an Imperial audience, she allowed them to make their humble obeisances to the Son of Heaven—her son, you understand—but significantly appointed as the scene of this farcical ceremony a hall outside the palace usually employed for the reception of tributaries. Shortly afterwards her son, the quasi-Emperor Tung Chih, was induced to declare himself too ill to continue the onerous duties of government, and to request the Dowager Empresses to resume the regency. The ex-Emperor conveniently died in 1875, and his consort, who was pregnant, disappeared also, nobody daring to say how she and her child came to their death. The two Empresses Regent selected thereupon once more an infant, a child of Prince Chun, who is a younger brother of Prince Kung, called Tsai Tien, born in 1871, and proclaimed him heir to the throne under the style of Kuang Hsi, in the year 1875. But the cunning Empresses secured their lease of the regency this time not merely by the selection of an infant, but of one who should have a flaw in his

title, a flaw which would at any time afford a convenient handle to revoke his claim to the throne. Kuang Hsü being like Tung Chih a nephew of the former Emperor Hien Fung, and therefore of the same generation as Tung Chih, could not, under the laws of Chinese ancestral worship, offer the needful sacrifices to the spirit of his deceased predecessor, Tung Chih. But the latter's eternal rest and the fortunes of the dynasty depend upon these sacrifices, which, however, can only be offered by one of a younger generation. Accordingly Kuang Hsü could not, with perfect legality, act as successor to Tung Chih. In 1881 the widow of the Emperor Hien Fung died, and left the Dowager Empress, Tszu Hsi, sole regent. When Kuang Hsü came of age, in 1889, she allowed him nominally to ascend the throne. She also granted to the foreign Ambassadors an Imperial audience, but again coupled it with the infliction of an admixture of humiliation. When Kuang Hsü showed a strong inclination to favour reform and to make friends with European Powers, the Dowager Empress tightened her hold upon the reins of government, which she had virtually retained in her hands all along. In 1894 and 1895 the Manchu Government forfeited the respect of the nation at large by the crushing defeat of the Chinese army in the war with Japan. Secret societies, aiming at the subversion of the Manchu dynasty, under the pretext of seeking to expel all foreigners from China, now sprung up like mushrooms in all parts of the Empire, and a cry for reform resounded from one end of China to the other. But the courage of the Dowager Empress defied the coming storm. In September, 1898, she broke up the reform party which had gathered around the young Emperor, and its members were executed or banished. From that time the Emperor Kuang Hsü practically ceased to reign. He was declared to be ill. In December, 1899, the Dowager Empress produced a document signed by the Emperor in which he requested her to relieve him of the care of the government. It is said that the Emperor voluntarily signed that document, after he had in vain appealed to several European Powers to rescue him from the clutches of the Dowager Empress. But Peking rumours are not reliable. As a matter of fact, the Dowager Empress formally resumed the regency in January last, and on 25th February she once more resorted to her favourite trick of selecting a minor as heir-apparent to the throne, who is to be the successor of Tung Chih. Her choice, which was forthwith ratified by the Imperial clan, fell on a youth said to be 13 years old, called Pu Chun, a grandson of Prince Tun, the fifth son of Hien Fung's predecessor (the Emperor Tao Kwang). The Dowager Empress made this move on the plea that Kwang Hsü had no son (as yet), and that

Tung Chih must have some one to offer sacrifices to his spirit ; but it is plain that this measure once more gives the Dowager Empress a legal renewal of her lease of the regency. The more recent events are known to you.

Having thus given you my views of China, its country, its people, and its present government, so far as it was necessary to lead up to the consideration of the second half of my subject, viz., the Far Eastern Question, I think I have already indicated by my foregoing remarks what, in my opinion, the kernel of the Far Eastern Question really is. The Far Eastern Question, as I understand it, is in its main point not one that any particular individual has propounded, nor a question that has accidentally cropped up ; but it is a question which the whole history of the relations of China with foreign nations has continually brought forward, viz., the question, which on the Chinese side is this—What right have you foreigners to demand that China shall surrender that isolation by which she has become great ? All other questions are but derivative or supplementary to this, which is the root and matter of the whole problem as I understand it.

China's claim to the right of isolation, and its endeavour to justify its pretended exclusiveness, on the ground of natural laws, goes for nothing. All nations are, as much as China, stewards over the natural endowments of their respective countries, and their character, their mission, their destinies are also determined by the same natural law which operates in China. Each nation has, as much as China, the sacred duty to safeguard the palladium of its own peculiar national character, and to illumine, by its own specific achievements in culture, all surrounding countries. But the point is that the very law of nature, on which the Chinese base their claim to isolation, is a law of impartial universality. According to the same law of nature which forbids an individual in China to stand alone, and consolidates the Chinese tribes and clans in one nation, all the individual nations are prohibited from standing aloof from each other, and are, by instinct as well as by necessity, tending to become more and more an organized confederacy of nations, for the benefit of the general interests of humanity. China's wilful isolation and pretended exclusiveness is, in reality, the grossest violation of that primary law of humanity to which the Chinese appeal.

But look at the facts of the case historically, and you will see that the whole talk of isolation and exclusiveness is a mere fiction. The desire was all along there, but the reality nowhere. Not only has China from the beginning of its history gone outside its natural and artificial walls of isolation, overpowered Corea, given its civilization to ancient Japan, conquered and fleeced Man-

churia, Mongolia, Tartary, Turkestan, and Tibet, but it has from the most ancient times carried on trade relations across the China Sea with Borneo, Java, Sumatra, and Further India, yea, with the old Roman Empire. Not only has China for many centuries in the past sent hordes of emigrants and settlers to Cochin China, Siam, and Burmah, but it has, in the seventeenth century especially, as of late, again and again sent, through Central Asia as well as by sea, the black death, bubonic plague to Europe, for the plague bacillus has its original habitat in China's filth. Talk of exclusiveness, when China sent to India 1,700 years ago for teachers of Buddhism, and established numbers of Sanskrit Colleges and monasteries full of Indian priests, from the sixth to the ninth century in all parts of the country! Go to-day to the Temple of the Five-hundred Gods in Canton, or to the Lama Temple in Peking, imitations of which you find in every large city in China, and you will see, among the portrait statues there, a goodly number of foreign saints, Indian and Tibetan, idolized by the common Chinese people. No, the Chinese have never been really isolated. They have never been truly exclusive except in the sense of exclusive devotion to their own interests, always ready to abandon their isolation when, and so far as, they could profit by it. They have always welcomed embassies from abroad when they came as tribute bearers. They admitted a Jewish colony ages ago. They recognized Nestorian Christians more than a thousand years ago. They embraced Mohammedanism to a very large extent in South-Western China. They received with open arms the Jesuit missionaries because they tacitly admitted China's claim to universal suzerainty, and the Chinese treated the Jesuits well so long as they consented to cast canons for them, to survey the empire trigonometrically, to regulate the calendar, to teach astronomy and mathematics, and to foretell eclipses for the benefit of the Peking Board of Astronomy. The Manchu Emperor Kanghi invited foreign trade to Amoy and Foochow. His successors systematically encouraged foreign trade at Canton, and even the so-called opium trade which, for centuries before that time, had been carried on by Chinese caravans through Tibet. The Chinese imperial officials at Canton used every means in their power to further European trade, so long as foreign merchants would submit to the most degrading tyrannies, and pay exorbitant secret bribes to the individual mandarins, over and above the customary tariff duties. Things went on well enough as long as the East India Company submitted to this system of corruption, and claimed no extraterritorial jurisdiction. But further I ask, has not in more recent times, the Chinese Government permitted and virtually sanctioned the emigration of Chinese to the

Straits Settlements, to the United States, to Australia ? Has not the Chinese Government sent embassies to every great foreign Power in the world, claimed and unfortunately obtained admission into the comity of nations, as if China were a civilized Power itself ? Has not the whole Chinese nation recognized as the greatest financial benefit ever secured in China, the establishment of the imperial maritime customs service under English direction ? Has not of late China gone again and again into the money markets of Europe and borrowed large sums for the benefit of the national exchequer on the security of those customs returns ? Has not China engaged large numbers of foreign drill instructors to organize an army and navy on the European model ? Has not China found it impossible to build its railways otherwise than by means of foreign capital, because native capitalists have not sufficient confidence in the honesty and stability of their own government to make those advances ? Has not China again and again thankfully received foreign charity on the occasions of dire famine in North China ? I feel sure I need not add another word to secure your approval of my contention that China's claim to isolation is a mere subterfuge of mean selfishness, without any foundation in natural law or in the facts of history.

But then the Far Eastern Question confronts us with the demand to explain why the Chinese, if they really after all seek for their own selfish interests intercourse with foreign nations, are so full of hatred against all foreigners whatever. For the Boxer movement and the latest bloody events in Peking and in other parts of China are a clear symptom of a deep-seated wrathful animosity of a large part of the Chinese nation against all foreigners, ambassadors, officials, merchants, and missionaries, without any discrimination. I have already indicated in my remarks on the character of the Chinese people and on the policy of the Manchu Government the principal causes which produced this bitter feeling of Chinese patriots against foreigners. I need not do more than summarize and point out the conclusions to be derived from what I have said already.

The causes of the anti-foreign feeling in China lie, in the first instance, in the uniform unwillingness of foreign merchants and missionaries in China to recognise China's ridiculous claim to supreme suzerainty over all nations and princes in the rest of the world, and more especially to the steady refusal of all foreigners in China to submit their lives and property to the jurisdiction of Chinese law courts as at present constituted. The claim of extraterritoriality of jurisdiction set up by foreign trade in China since the year 1834, after the break-up of the servile East-India Company's monopoly in China, is historically the first

and deepest cause of Chinese hatred against foreigners. I believe I have irrefutably demonstrated this proposition in my book entitled "Europe in China, or the History of Hongkong," published in 1895. It was this claim to extraterritoriality that was the true cause of the so-called opium war. The national self-respect of both the Chinese and foreign nations came first into irreconcilable conflict over this question.

I pass over the question of the opium trade and the Anglo-French wars with China as of secondary importance, because the Chinese people were not unanimous in their view of these matters, and a considerable section of the nation approved some of these proceedings. But I would point to the above-mentioned European interference with the Taiping rebellion in 1852, and the consequent defeat of the national party in China, as the second strong force of national hatred against foreigners in China.

Next I see a third and even stronger current of continuous ill-will against foreigners arising from the oppression, the truculence, and the corruption of the foreign Manchu Government, and from the consequent fomentation of anti-foreign secret political societies, taking their stand upon that divine right of rebellion which, as I have stated above, it becomes the duty of Chinese patriots to exercise, when their rulers have, by their misrule, brought the nation to the verge of ruin and manifestly forfeited the favour of Heaven. Shortly before I left Hongkong, some three years ago, I was told by some Chinese scholars then implicated in the abortive attempt to upset the Manchu Government in Canton, that an agreement had been made among the leaders of the principal secret societies of China to aim henceforth not directly, as hitherto, against the Manchu Government, but against foreigners, so as to irritate the Foreign Powers sufficiently to pull down the Manchu dynasty themselves, and then would be the time for the national party to agitate for the re-establishment, by foreign arms if necessary, of a new Chinese dynasty on the ruins of the decayed Manchu fabric. I am sure this is the real aim of the Boxer movement. Their cry is for the present. "Down with all foreigners," because they know that cry, followed up by the deeds of an infuriated mob, will embroil the Manchu Government with all foreign nations. It suits their deep-laid scheme to expel the Manchus from the Chinese throne, to enlist the Imperial troops in their animosity against foreigners, and to make a catspaw of the very Manchus, soldiers, and princes of the Imperial family, whom it is their ultimate aim to subvert. Chinese secret societies are as expert hands in the Manchu game of devilry as the Empress Dowager herself.

But a fourth, and perhaps the strongest cause of the excessive

degree of hatred entertained by the Chinese nation at large against all foreigners, a hatred which has only since the last four or five years reached boiling point, lies in the overwhelming national disgrace involved in the last Chinese war with Japan in 1894 and 1895. The Chinese hate Europeans and Americans, but they hate and despise with even greater intensity the Japanese, because they, after being nurtured by Chinese culture, abandoned native and adopted European civilization. When the Japanese invaded Corea and Manchuria, drove the Chinese armies before them like a herd of sheep, established themselves in the Liaotung Peninsula, and calmly prepared to march against Peking after having administered a series of crushing defeats upon the Chinese army and navy, the sight of the utter impotence of the Manchu Government and the extreme weakness of the Chinese nation, exposed in view of the whole world, inflicted the heaviest wound upon the national consciousness it had ever received. All Chinese stood aghast. It was so unexpected, it seemed so incredible, and yet it was so undeniable. A terrible cry of indignation and mingled rage and shame rang through the whole length and breadth of China. And in that hour of impotent rage the wrath of the nation settled not only on the Japanese who, unrighteously balked by Russian interference of their just reward, had to be satisfied with the annexation of Formosa and some minor concessions, but the wrath of the Chinese nation now settled on all foreign nations that had stood by and watched the struggle without doing more than staving off for a while the doom of the Manchu dynasty and allowing Russia to reap the fruits of the Japanese victory in the Liaotung Peninsula.

It has been said that the evangelistic work which has of late years, with ever-increasing success, and to an ever-increasing extent, been carried on by Christian missions in the Far East, is largely responsible for the troubles in China. I am quite willing to admit that, side by side with the ever-increasing volume of trade pouring into China from all parts of Europe and America, the gradual expansion of mission work in the interior provinces of China shares with European commerce in the responsibility for breaking down China's great wall of isolation, and for the consequent troubles that have arisen. But I ask you this question: If it is fair and justifiable for European and American merchants to introduce their merchandise into China at the risk of offending the susceptibilities of Chinese exclusivism, why should it not be fair and justifiable for European and American Christians to introduce that which is more precious to them than merchandise, that eternal truth of salvation in Jesus Christ, which is more calculated to benefit the Chinese than all the

world's merchandise put together? And let me direct your attention to a few facts. There was a time in my own recollection when the missionary in China was looked upon as a mad-brained fanatic, whose endeavour to christianize the Chinese was absolutely hopeless. Things have changed since then. A hundred thousand Protestant Chinese Christians testify to the fact that mission work in China is largely welcomed by Chinese. The very protest of the Chinese Boxers against the spread of Christianity in China, and the accusations hurled by narrow-minded foreign merchants and newspaper correspondents against Christian missions as the principal cause of all the troubles in China, emphatically testify to the hold which Christian missions have gained upon a section of the people. And further let me tell you one additional hard fact. The attitude of the best and most intelligent commercial men in China, in Europe, and in America has of late years changed in relation to Christian missions. In the first instance they have come to recognize the fact that the persistent and ever-extending peregrinations of thousands of European and American missionaries throughout the length and breadth of the interior of China is an indirect but potent advertisement of foreign merchandise, of which the varied goods and chattels in the possession of the missionaries are fine samples, and that the peaceful operations of missionaries in China are a powerful lever, gradually prizing open the interior of China by the very troubles these missionaries undergo at the risk of their lives. In the second instance, an ever increasing number of merchants in China, in Europe, and America have a soul above dollars. Evangelical Christianity, Puritanism if you like to call it so, has after all tinged public feeling in all highly civilized countries that have to do with China. The millions of pounds sterling that are annually subscribed for mission work, the ever-increasing crowds of missionaries of all classes of society that swarm to China from year to year, like the crusaders of old to the Holy Land, testify, with the irresistible logic of hard facts, that it is the fixed determination of an increasingly large section of the Christian public of all lands, as well as of the native Christians in China, that the Gospel shall be freely preached in the Celestial Kingdom at all hazards. And so the missionary, formerly looked upon by European merchants in China first as a mad-brained intruder, then as a detestable nuisance, has now become as legitimate a representative of Europe or America in China, as the foreign merchant himself. The lamb-like missionary impulse of all Christian countries, Protestant and Catholic alike, unconsciously but irresistibly demands exactly what the industrialism of all foreign countries necessitates: the opening of

the gates of China to peaceful intercourse with the rest of the world.

Having thus explained the causes of that recent outburst of popular wrath against all foreigners in China, and endeavoured to remove a misunderstanding existing in some quarters as to the connection of Christian missions with that outbreak, the next question I have to consider is, what the Foreign Powers are now bound to do in the matter.

Apart from the temporary military interference which is absolutely necessary to restore order, to stop further outrages, and to protect foreign life and property in China, which can be done on the basis of an international agreement, such as lately proved perfectly effective in the delicate matter of the Cretan insurrection, I think the first duty of the allied Foreign Powers is to depose all the leading officials of the reactionary court party and to bring those high personages who were personally responsible for the prevention of the outrages which have occurred under condign personal punishment. The treatment which was accorded to Arabi Pasha is the least that can be expected to be meted out to those Manchu and Chinese officials who are really responsible for the outrages in China. Who these officials are it is not difficult to say. That the Empress Dowager is, in spite of her temporary flight, personally and primarily responsible for the whole disturbance there can be no doubt whatever. And as to the officials who are responsible under her, she has herself, in an Imperial decree dated 30th May last, expressly specified the individuals. That decree runs thus :—

“It will be hard to root out those who have thus incited the ignorant country people. We hereby command Ch’ung Li (Imperial Clansman), Commandant of the Peking Gendarmerie, the Governor of Peking, the Police Censors of the Five Cities of the Capital, and the Viceroy of Chihli, as well as those holding military commands, to combine and arrest the real disturbers of the peace, and all who heartily desire to commence a rebellion against the Government, and to punish all such to the severest extent of the law.

“Let there be no more shirking of responsibilities and delay or attempt at whitewashing the matter at a time like this, and if there be failure in obeying our commands the responsibility will rest on the said Ch’ung Li, and the civil and military officials above noted ; we are determined that there shall be no leniency this time.”

Next to the question of personal retribution, comes the question of national retribution and reorganization. I do not apprehend

any serious international complications, but I am not a politician, and you will have to take my views for what they are worth.

One thing, I think, is clear. China needs a thorough reorganization, executive, administrative, and especially educational, for from the education of the individuals only can we expect a regeneration of the mass of the people. For such a thorough reform the existing Manchu Government is a hopelessly useless intermediary. On the other hand a partition of China among the different Foreign Powers would, in my opinion, make matters worse, for each nation undertaking the reform of the government of a part of that tremendously large country would have to reckon with a hostile populace whose pacification would swallow up all the military forces of all the Foreign Powers combined. In my opinion a feasible plan would be to satisfy Russia by the entire cession of Mongolia and a part of Manchuria, and Japan by the cession of a part of Manchuria and of Corea, leaving it to these two Powers to conquer and administer these territories as they please. It will be merely an extension of their respective frontiers, and these Powers have a natural facility of dealing with such people as the Coreans, Manchus, and Mongols. Then, as to the eighteen provinces of China proper and Tibet and Turkestan, I should say the reinstatement of the Emperor Kuang Hsu, with an International Council of State, to administer the government of the Chinese eighteen provinces and of Tibet and Turkestan on the principle of a combination of the methods originally employed by the Manchus in the organization of the Chinese Empire and of the methods employed by the British Government in relation to Indian Tributary States, would answer all purposes. This measure would leave the Chinese nation intact as a whole and would satisfy the people. For in their eyes such a measure would merely put foreign officials in those high offices which were hitherto occupied by the Manchus, whilst all the remaining part of the machinery of the Government would be worked through Chinese officials under foreign, instead of as formerly under Manchu, supervision. Special concessions of coast ports and adjoining territory to individual Foreign Powers according to the system already in existence, as for instance in the case of Hongkong and its newly-acquired Hinterland and in the case of the German concession of Kiao Chow, would be quite in harmony with such a scheme. The extension of the organization of the present international maritime customs service to the collection of the land tax, which has in past years repeatedly been proposed even by Chinese reformers, would no doubt commend itself to the Powers. Of course China would in the above case be open to all nations on the principle of the strictest equality.

In conclusion I venture to add a few words as to the future. I have no doubt the opening of China, so long hoped for, is now at hand. It will afford an immense fillip to the trade and manufactures of all civilized nations. It will give to Christian missions in China and Tibet all the facilities and freedom they now enjoy in India. The building of railways, the construction of roads and bridges, the opening up of the mineral riches in China, the organization of an international army and navy, will not only lessen the emigration of Chinese to foreign countries, but it will offer remuneration and satisfactory employment to the unemployed multitudes of Australia and all other foreign countries.

On the other hand, I apprehend also, for the more distant future, some dangers that may arise. In the first instance I fear the opening up of the entire China to the commercial enterprise of the whole world will cause a rush of foreign capital to China. That capital will find in China a specially remunerative field, owing to the extraordinary cheapness of Chinese labour, in the working of industrial machinery. Just fancy 250 millions of people, sound in limb and brain, taught under competent European foremen, supplied with all modern tools, looms, and machines of technical manufacture, and these men working for twelve hours every day at one-tenth of the ordinary wage of a European workman. What a revolution that may work in the industrial world outside China. Why, in twenty-five years China would drive many European, American, and Australian products out of every market in the world, and supply the universe with its products. "Made in China" may have a more effective sound than "made in Germany." Of course, the extent to which China will then increasingly consume other goods which foreign countries can produce cheaper will, to some extent, balance the evil outlook. But still, so long as the employment of human labour is exclusively subject to the economic laws of value and exchange of commodities, the industries of Europe, America, and Australia will be seriously affected by the competition of China as a manufacturing centre.

As to the other fear, which has been expressed in various quarters that the millions of China coming under military training of an international government, equipped, drilled, organized, say on the mode of the Prussian military system, would be a menace, by their big battalions, to the rest of the world, I do not think much of it. I think, indeed, that, owing to the strong muscularity of the Chinese, there is in China as good material to be found to make fine soldiers of as anywhere else in the world. But the Chinese are on the whole a peace-loving people,

and have a contempt for military employment. Their passion is agriculture, and industry, and pedling trade. So long as good employment is open in these walks of life the Chinese will eschew the recruiting sergeant. And as to the rest, the Foreign Powers interested in China will see to it that the Chinese are not armed to a larger extent than it is necessary and compatible with safety.

I have said what I could say on a vast and intricate subject. I only hope that I have, with my imperfect knowledge, contributed a little to supplement your knowledge of a people whose doings have lately shocked our feelings terribly. I should feel amply rewarded for my trouble in preparing this lecture if I have helped you to feel as I feel, viz., that to know the Chinese is to pity the Chinese.

Adventure in the First Steamer, "Melbourne," out of the Mouth of the River Murray, on 20th August, 1854.

By the late Hon. SAMUEL TOMKINSON, M.L.C.

Read August 27, 1900.

A former Governor of South Australia, Sir Henry Edward Fox Young, took great interest in the navigation of the River Murray, in which he was supported and probably prompted by his Chief Secretary, Captain Charles Sturt, who had explored it in a small boat from New South Wales to its mouth in the year 1831, a very adventurous journey, as described by him in two volumes of most interesting reading.

It was early in 1852 that Captain Francis Cadell, of the sailing ship "Queen of Sheba," arrived in South Australia, and as he was the principal person of the party I accompanied I must say a few words about him. He was a man full of adventure and enterprise, and I used to tell him that he ought to have been in the employ of the Royal Geographical Society on a pay of £2,000 a year, and allowed a free hand as well. His one great ambition was to explore great rivers, such as the Orinoco or the Amazon, but being in Australia, its greatest river, the Murray, became his immediate object. He, therefore, put himself in early communication with Sir Henry Young, Captain Sturt, and other Government officials, and at last succeeded in interesting in his project one of the leading merchants, Captain William Youghusband, afterwards Chief Secretary of South Australia, and a man of great vigor, ability, and determination.

These efforts resulted in an arrangement being made in September, 1853, for a voyage of exploration of the River from the Goolwa, where Cadell had established himself in ship and boat-building, a foundry, etc., for providing the necessary requirements on a large scale. Here he built the steamer "Lady Augusta," named after Lady Fox Young, now residing at Cromwell Road, London, who is the mother of Mr. Aretas Young, now residing in Adelaide.

It was determined by the Governor, Sir Henry Fox Young, to

make Port Elliot the shipping place for the River Murray, and connect that port by a railway with Goolwa, the mouth of that river being deemed unnavigable, owing to dangerous breakers at its entrance. A breakwater was therefore resolved upon, and made in the small bay of Port Elliot, with the reluctant consent of Captain Thomas Lipson, Harbour Master, a project which subjected the Governor to much ridicule and obloquy from the principal colonists. But, as His Excellency held the command of the purse, supported by the late Hon. Boyle Travers Finniss as his Treasurer, no doubt Sir Henry Young justified the expenditure to the home authorities, especially as he was then repaying them the advances made to South Australia for necessary public works in the time of Governor Gawler.

The River Murray had engrossed much public attention during the years 1853 and 1854. Captain Randall, who had built a steamer at Mannum, was the first to commence trading from that port to different places up the river, taking flour and other supplies for the distant settlers; and for his success in carrying out this enterprise in the face of great difficulties, his name deserves to be remembered for all time. Captain Randall has only recently retired from Parliament, after having represented Gumeracha for six years.

Following him, in September, 1853, Captain Cadell took with him in his steamer "Lady Augusta," Governor Sir Henry Fox Young, Lady Young, Mr. and Mrs. Younghusband, the late Mr. E. W. Andrews, of "The Register," besides some other colonists, a trip which was successful in establishing a trade with some of the large squatting stations up the River and its large tributaries. If I remember right, Swanhill was the farthest place which the "Lady Augusta" reached on that trip, and the party returned safely. The trade upon the River Murray being thus opened up, it soon became of considerable importance, and several mercantile firms entered into it, viz., Younghusband & Co., Acraman, Main, Lindsay, & Co., Johnson & Murphy, and others. Messrs. Acraman employed two excellent cargo boats—the "Leichhardt" and "Sturt," and Captain Randall extended his business on the River for many years after.

Captain Charles Sturt, in his book "Two Expeditions into the Interior of South Australia," Vol. II., pp. 258-267, writes, "It is to be regretted that circumstances did not permit of a more perfect examination of the Lake (which has been called Alexandrina), as the immediate vicinage of Gulf St. Vincent furnishes a just ground of hope that a more practical and useful communication may be discovered than the channel which leads into Encounter Bay."

Well, nothing having been found between the long period of 1831 and 1853, Captain Cadell being in command of a larger boat (the paddle-wheel steamer "Melbourne"), and having safely navigated her through the River mouth to the Goolwa, became impatient of restricting it to internal trade only, and boldly resolved to show it was as safe, with a good ship and competent crew, to come out of the River as to enter it. Accordingly, he induced Captain Thomas Lipson R.N., Harbour Master, Captain John Hart, Mr. William Younghusband, myself, and a few others, to meet him at Goolwa on Saturday, 26th August, 1854, when we rode to examine the sea mouth of the Murray, and as it was quite calm, we determined, after holding a consultation the next day, to take the "Melbourne" on Monday, the 28th. As the ship was not insured for that risk, I was deputed to write to the Governor, on behalf of the owners, requesting the favourable consideration of the Government in the event of loss. Captain Cadell having reported that all was right, received us on board at 8 a.m. with his chief officer (afterwards the late Captain Robertson); and with his boat's crew—eight splendid New Zealand sailors—we cast off with cheers from the wharf. At Barker's Knoll—a high sandbank now invisible—we made fast for a few minutes watching the breakers, and then on a favourable signal from the man at the pole, the ship in a minute or two was in the surf, rose to it, and then bumped. A singular cry, partly a scream and a laugh, was heard from Captain Hart—which all who knew him recognized at once—who, leaning over the stern sang out, "Why, the rudder's floating." Standing by Captain Lipson I observed his colour change. Mr. Younghusband—always calm—looked at Cadell who, hastily passing from the paddle, exclaimed, "We're through it all right; the boat is out with a line to steer by," and sure enough the vessel, chief officer, and crew, were there in smooth water, and we had scarcely recovered from the sensation of being nearly stranded when we found ourselves alongside the landing slip at Port Elliot, and breathing freely on solid ground.

But further adventures and dangers were before us that early morning. A tramline connecting Port Elliot with the Goolwa had been made some time previously, and was then in charge of Mr. Jones, father of the present Conservator of Water. Our party, with other passengers, after landing filled up an ordinary open truck, and started for Goolwa to complete our tour. We were drawn by a pair of horses, and as I sat by the driver, on arriving at a slight rise on the line I perceived a truck loaded with wood at the bottom, with a house close by, and our horses trotting

fast. I told the driver to put on the break, but as he worked at the lever without effect, the horses broke into a canter, and I saw that another catastrophe was imminent. I had been in a great railway accident at Chester a few years before, and now saw the necessity of instant action, as there were about twenty people on the two trucks. So I rose, and looking at them, called out, "Do as I tell you. Stand up, and shout;" which they did; and as we approached the truck at the bottom I said, "Hold up your hands and yell," and this they did, some women screamed loudly. We then saw men coming out of the hut, who recognized the position at once. About six of them rushed at the wagon, and at the risk of their lives pushed it over, when our horses and trucks shot past at a gallop, and the danger was over, and as we came to a slight incline the driver pulled up, and we were at the Goolwa again, talking over our escapes.

Some years after, I asked Mr. Jones, at Goolwa, how it happened that the break did not act. He replied, "Oh, I put on a new hand that morning for the party, and he did not know how to work the break, for he turned the handle the wrong way!" On such unlooked-for risks do people's lives depend, even at this time of day, as many recent calamities have shown. By-the-by, I ought to mention Mr. Younghusband, having enquired how the iron rudder of the "Melbourne" was displaced so easily, discovered that Captain Cadell had with his usual daring, rather than delay the trip, put off from Goolwa with only half a rudder, the other half being in the forge for repairs, unfinished when we cast off in the river. My old friends, Lipson and Hart, perhaps feeling that they were not altogether safe from further mishaps at Goolwa, ordered their carriage for Adelaide forthwith, and invited me to accompany them. We slept in the Old Bush Inn, Willunga, that night, and reached Adelaide about noon the next day.

Many trips in and out of the Murray mouth were made by Captains George Johnston and Murphy in the steamers "Melbourne" and "Corie," but the ships came to grief, and the entrance to the great River Murray is practically abandoned, except for boats which watch for a favourable moment; and Encounter Bay, instead of becoming a great commercial outlet, is now only a favourite summer resort.

The paper which I now have the honour of reading to this Society refers to events and persons known only to a few. Perhaps I am the sole survivor of that attempt to open the internal navigation of South Australia on the occasion I have described; and bearing mind what had been the object and hopes of the

River Murray's first navigator, the gallant Captain Charles Sturt, and of his enterprising successor, Captain Francis Cadell, I have, at the invitation of this Society, endeavoured to place them on record. It may perhaps be of some interest to a future generation of South Australia.

On Totems: Their Universality and Varied Developments.

By Mr. THOMAS S. REED.

Read August 27, 1900.

The valuable lecture of Mr. Gillen some time since on "The Natives of Central Australia" suggested the idea of formulating some notes I had previously made on this most interesting subject of totema.

I shall not, however, in any sense trench upon the ground taken up by Mr. Gillen with respect to the nature and intricate laws of clanship, marriage, and descent in connection with this subject, so ably treated by him and with which I am not conversant. My only purpose is to say a few words, and as briefly as possible, on the universality and varied developments of this principle of totemism, which in one form or other has existed, and still exists, in almost every nation or people on the face of the globe.

Totemism is in one word Nature Worship, and a totem is a Nature Symbol. The word itself is derived from an Ojibway word "ote"—family or tribe—and was first introduced into literature by L. Long, an Indian interpreter of the last century, who, adding the personal pronoun "kit"—thy tribe—spelt it totem, a word which is universally regarded as synonymous with a tutelary genius, a tribal symbol, and an heraldic crest or sign.

The totem pertains to a class of objects—generally that of animals or plants—but really embraces the entire world of nature—the earth, seas, rain, and the whole planetary system. A totem, of whatever class, whether animate or inanimate, is regarded with superstitious respect by one who believes in the existence between him and that class of a mutual relationship of special benefit. It is not, however, in any sense an idol, but a reputed ancestor or protector, and this idea is borne out by the totemic word Kobong, as adopted by the Western Australians, being literally protector or friend.

There are three classes of totems—that of the Clan, the Sex, and the Individual respectively; this last the most important of all. The first class clan call themselves by the name of the

totem, believing in their descent from it. Thus, the Turtle clan of the Iroquois say they are descended from a fat turtle which, feeling burdened by the weight of its shell in walking, by great exertions cast it off, and gradually developed into a man. The Crayfish clan of the Choctaws were originally crayfish, and lived underneath the ground. It is said that a party of Choctaws once saw a number of these crayfish coming up from the mud to the surface, when they caught them, treated them kindly, taught them their language, and how to walk on two legs, cut their toe-nails, and finally adopted them into their tribe. In the second class, there is a special totem for each sex, the male and female, but its existence is only occasional. The "Ta-Ta-Thi" tribe of New South Wales, for instance, has a sex totem in addition to that of the clan, a bat for a man and a small owl for a woman ; and the men and women address each other as owls and bats. But if a woman kills a bat or a man kills a small owl, there is trouble in the wurley and a fight over it. The third class is the most sacred of the three. It is a totem given to each individual at childhood—generally by the medicine man—to be kept by the possessor as a secret and sacred talisman. It is never inherited.

The central idea in this belief is the protecting power of the totem, and the man looks for and expects this protection. It is therefore said that dangerous animals will not hurt their clansmen. In Senegambia, for instance, those of the Scorpion clan affirm that a scorpion will run over their bodies without biting them. On the other hand, for a man to kill, hurt, or eat his totem, is with uncivilized tribes generally a similar impiety to that of killing or eating a fellow tribesman.

Beginning with the Australian natives, every tribe has its good genius, which takes a special interest in its welfare. It may be a snake, a wild dog, a bird, or an insect ; and as a rule no man will kill or eat his totem or "ngaite," excepting at times of extreme hunger, but in any such exceptional cases with an expression of sorrow for being obliged to eat his "friend." Under another aspect, a native once accidentally killed a large mygale spider, the totem of his tribe, and so, to prevent mischief, he immediately swallowed it.

In Gason's work, he speaks of several persons whose "Ngait-yes" are different kinds of snakes, which they catch, pull out their teeth, and sew up their mouths, and keep them in a basket as pets. "One man, I knew, had as his ngaitye or totem a large tiger snake, and after pulling out its teeth he put it in a basket and hung it in his wurley. The next morning he found the snake had brought forth sixteen young ones ; but as the mother only

stood in the relation of totem, and not her young brood, the native killed the whole lot, mother and all ! On cutting open the parent, he found seven more young snakes, making a total of twenty-three produced at one birth.

As it is usual with snakes to lay their eggs, I must, in corroboration of this statement, quote Gerard Krefft, the Curator of the Australian Museum, Sydney, who says, "Some serpents bring forth their young alive, and others by eggs."

Respecting the Narrinyeri tribe, Curr, in his "Australian Races," reports that in the year 1885 a Commission of Enquiry into the Customs of the Natives sent a number of questions to five persons dwelling in localities frequented by this tribe—Police Troopers Deane, of Wellington ; Dunn, of Milang ; Moriarty, of Goolwa ; Crown Ranger Wadmore, of Meningie ; and Rev. G. Taplin. Question 5 was—"Has each class a totem, that is, some beast, bird, or other living or inanimate thing which is the symbol of the tribe ? The answers agreed universally in the affirmative with reference to every clan, one report giving full details of the Narrinyeri tribe as having 18 clans, each of which had its special totem.

The Bishop of Wellington mentions a curious fact with respect to the Maoris, viz., that the spider is their special object of totemic reverence, as the priests told them the souls of the faithful went to heaven on gossamer threads. They were therefore very careful not to break any spiders' webs.

Passing to the Samoan, his *aitu* was a special object of veneration, as seen either in the eel, the shark, a turtle, a crayfish, or a bird. A man whose god was the pigeon would never eat that bird, and a man whose god was the dog would never raise his hand or a stone to the ugliest cur that prowled about his path. A Samoan would freely eat of an incarnation of the household god of another man, but of his own *aitu* he would consider it death to injure or eat, believing that it would then form in his inside and kill him. Another *aitu* was the owl, which, indeed, gave omens to its clansmen in Samoa. If it flew before them as the clan marched to war, it was a signal to go on ; if across their path it was a warning to retreat.

Madagascar is divided into districts rather than clans, and in these the spirit of their ancestors is embodied in either the lemur, the eagle, the vulture, or the owl. The natives also have as their special tutelary the crocodile, as being possessed of superior powers, and wear as a sacred talisman a crocodile's tooth, which, indeed, is the central ornament in the king's crown. Yet, not-

withstanding this, as in the case of the snake just mentioned, the natives destroy the young crocodiles and collect the eggs which they boil and dry in the sun.

An interesting fact is mentioned by Leslie in his "Early Races of Scotland," who states that "On the Scottish stones are incised as totems the three figures of the elephant, the goose, and the crescent of the moon—precisely the same figures that are found in the Pagan and Planetary worship of Ceylon. Finding such peculiar emblems in two countries so remote from each other as Ceylon and Scotland—in which the latter place, he says, the elephant never existed—the question naturally arises how the superstitions of Asia could have found their way to a land so unknown and so barbarous as we must imagine Scotland to have been at the period which the most moderate computation assigns as the date of the erection of these Scottish stones." But shall we not find a solution to this question in the material alterations of climate in the tertiary period, as recorded by many geologists, telling us that tropical animals wandered through the European forests—those of the mammal order especially.

In a paper of great interest before the Anthropological Institute by Miss Buckland, she says with respect to India—"Closely following in the track of the serpent, as delineated on the Indian temples, the Hansa, or Brahminical goose, also occurs as in some way connected with that deadly reptile, and that this bird was especially revered through its fondness for its young." It was also the emblem of the Ancient Britons, and Caesar relates that it was impious to eat the flesh of the goose. We must remember this at Michaelmas.

Miss Buckland also mentions "the peacock as a prominent totemic object of veneration among the Indian Brahmins and as a favourite armorial emblem of the Rajpoot warrior; and that in China and Japan fans of peacock's feathers are carried before the Eastern monarchs, as they are also before the Pope in Rome. But one of the most widely distributed totems was the cock. In India was dedicated to Parvati, the consort of Shiva; in Egypt it was one of the emblems of Osiris; in Etruria it is seen on many of the urns; and Archdeacon Moule says that "when on a voyage from the northern parts of China to Shanghai, the deck of the steamer was lined with coffins of those who had died far away from their homes and were now being brought back, and that each coffin had on the lid either a live cock in a cage or an imitation of that bird in white paper."

The Parsees, also, when a man is dying, bring in a dog and a cock as sacrifices; the cock to receive the good spirit, and the

dog the bad. Furthermore, in Rome, the cock was sacred to Mars and Apollo; and in Greece, the last words of Socrates to Crito, his familiar friend, were "Offer a cock to Asklepios."

Reverting to the Celestials, they seem to have a complicated formula, connected with their chronological computations, consisting of two sets of characters, one of ten heavenly branches, and the other of twelve earthly branches. Each one of these latter branches denotes one of twelve animals—the rat, cow, tiger, rabbit, dragon, snake, horse, sheep, monkey, cock, dog, and bear. And every Chinaman is said to be born under, or to belong to, a certain animal, and generally expresses his idea by saying "his animal is the rat, or his animal is the monkey," and so on, meaning that he was born during the year when the character responding to the rat or to the monkey enters into the term which denotes that particular year of their chronological cycle.

In Egypt the eagle or osprey was an emblem of Osiris, and likewise of Ra, the Sun, an emblem we often see represented on their sculptures, as a man with the head of an eagle or hawk, surmounted by a globe or disk of the great luminary. The eagle was dedicated to the sun, as being the symbol of light and spirit, because of the quickness of its motions and of its ascent to the higher regions of the air, where with unflinching eye it can gaze up at the light. In this bird also we have a point of descent from ancient mythology or symbolism, which indeed continued in use after Rome had become Christianized, as evidenced by Charlemagne, who on his coronation in the year 800, adopted the eagle as his ensign and placed it conspicuously on his palace at Aachen.

But one of the most celebrated mythological birds of Eastern origin was the Phoenix, which, according to Philostratus, came from India to Heliopolis, the city of the Sun, in Egypt, where it flies to the top of the temple. And then, just before it burns itself in the concentrated sun rays reflected from the golden shield, it sings a dying hymn. From this sprang the death song of the Swan in that beautiful madrigal with which some of us are familiar—

The Silver Swan who, living, had no note,
Leaning her breast against the reedy shore
Thus sang her first and last, and sang no more—
"More geese than swans, more fools than wise."

In Central Africa the totem is a particular kind of gorilla of extraordinary size, which is supposed to be the residence of certain spirits of departed negroes. Such gorillas the natives believe can

never be caught or killed. Should, however, a dead one be discovered, the skull is removed and placed in the Idol Temple, in which the natives—the fan tribe—gather at certain periods of the year to worship—to take away or destroy these skulls would be a sacrilege worthy of death. To other natives the totem is a calf, and none of that family will ever touch veal or beef, which to them is “roondah,” or forbidden; indeed, there is scarcely a man to whom some article of food is not “roondah.” Some dare not taste crocodile, some hippopotamus, a monkey, or a boa, or a wild pig.

In a paper on the “Tribes of Mashonaland,” read by Theodore Bent, before the British Association, he says, “Each of the Makalonga tribes has its totem; in Makototo’s country, it is a great lion, into which the spirits of their ancestors are believed to go, and this animal is supposed to fight for them in battle. To the lion they sacrifice annually, the chief priest of the tribe being called the Lion Priest, the Mondoro. Totems of similar nature, as Professor Glaser demonstrates, were found in remote antiquity amongst the tribes of Southern Arabia.

Passing on to America, we find that “the natives carve the peaks of their prows into various insignia, the totems of their tribes, which are painted in barbaric designs, the colouring of deep black, made from soot and seal oil.” There are also frequent examples of Tlinket carving on the huge totem poles seen alongside the many villages in British Columbia and Prince of Wales Island, showing the cleverest workmanship and designs, in representing family genealogies and life histories. These totems were often fixed on the grave to designate the family or sub-clan to which the deceased belonged, which may be either a wolf, a bear, a raven, a duck, or a goose.

The German naturalist, Fred. Ober, who undertook an exploration of the Caribbee Islands, says of the ancient Caribs—“Each person had his tutelary deity; it might have been a tree or a rock.” and that “once, when near the mouth of a cave in the Island of Dominica, inhabited by the Caribbee Indians, he found a small wooden image of a tortoise, curiously carved, the head and throat being covered with incised figures. The image probably belonged to an Indian living here many years ago, and was evidently a zeme or totem, as Irving’s Columbus speaks of the finding of similar objects by the Spaniards among the natives of Haiti.”

In Upper California, “the prominent emblem is the eagle, which Father Boscana relates is immolated yearly with solemn ceremony in the temple of each village.” He says “not a drop of blood was spilled—the body was burned; yet the natives

believed that it was the same bird they sacrificed each year, and more than this, that the very same bird was burned by each of the villages."

Among the Huron Indians, the totem of the first tribe is that of the bear, of the two others the wolf and the turtle. Each of the Sioux tribes also derives its name from some animal or part of an animal which is considered the peculiar sacred symbol. Every Indian has an object of special confidence, which he calls "Nigaumios," a word closely allied to the ngaitye of the Narrinyeri; and their persons, and also their blankets are decorated with these totems. One will have on his back a figure of the sun, another the figure of a bear or a bird, sewn with blue thread on the selvage of his cloak, and is as proud of it as a Roman patrician would be of the purple edging of his senatorial toga. Each tribe—each chief especially—derived his name from some totem embracing the whole field of nature. In exceptional cases a name is applied to some special character, such as "The Little Bear," "The White Cloud," "The Little Stabbing Chief," "The Whirling Thunder," and so on. The same totemic derivations occurred amongst our Anglo-Saxon ancestors, "Æthelwulf," the noble wolf; "Dunstan," the mountain stone; "Æthelstan," the noble rock; "Alfred," an elf in council, &c.

But the same form of worship that led these Indian tribes to the recognition of the animal as their deity, led their ancestors, existing far back among the prehistoric races of men, to erect animal effigies upon the soil. I allude to the marvellous work of the mound builders. Hundreds of these mounds exist in the valleys of the Ohio, some containing totemic emblems, and others temples or places of sepulture—more than one of these covering a hundred acres of land. Two examples will suffice—the first, a serpent mound, the effigy being made out of the soil and conformed to the shape of the bluff on which it is erected; the second, an alligator mound—in the southern district—situated on a very high and beautifully rounded spot of land which projects into the luxuriant valley of the Raccoon Creek. The total length of this alligator effigy is 250 feet, the breadth of the body 40 feet, and the length of the legs 36 feet.

Allusion has been made to the protective power of the totem which is singularly manifested in some of the ancient dwellings in Dakota, which have the image of a large bird with spread wings over the doorway, the entrance of the house being under the body and between the wings; and among the Mandans and other tribes of the Prairies, the figures of their animal totems were painted upon the outsides of their tents, making the opening to the tent through the body of the animal.

In "The Religion of Zoroaster," among the Persians "the tutelary objects of worship were Mithras and Homa—the sun and the moon"—and Zenophon testifies to the same custom. The sun was, in fact, an almost universal object of worship. Charlevoix, in a paper published by the Smithsonian Institution, says, "the Floridian Indians, as also the Delawares and the Shawnees, regarded the great luminary as the Supreme Deity himself, in whose honour and worship a perpetual fire was kept burning, over which priests were appointed to watch and to see that it never died out. First among these priests was Natchez, the chief of the tribe. Every morning at sunrise he appeared at the door of his cabin, and turning toward the east he howled three times, bowing down towards the earth. And then he smoked a calumet, used only for this purpose, blowing the smoke of the tobacco first towards the sun and then towards the other three quarters of the world." In the east the sun was sometimes represented as a chariot of fire drawn by four horses at the dawn of day, from the east to the west, in order to communicate light to mankind.

And surely, if any one branch of idolatry could be said to be pardonable, it would be this sun-worship, for they revered the great luminary as a symbol of the "All-good," who inhabited a Kingdom of Light.

And the modern worshipper still turns to that orb at the hour of prayer. I shall never forget a picture at the Great Exhibition of 1862—a large painting, very sparse in details, but beautiful in its significance, just a sea-coast, some hills on which stood an old ruin in the background; but the one central object that kept the beholder spellbound was a solitary figure kneeling on the sands, his eyes fixed in solemn adoration upon the sun. And I thought there might be many a less accepted worshipper in a Christian country than he.

The Magi of Britain, like those of Persia, worshipped the sun under the name of a chariot of fire, as seen repeatedly in the ancient Druidical ballads. In Ireland, also—originally called *Britannia Parva*—this fire worship prevailed among the ancient natives, which is vouched for by the Irish annals, the *Saints' Lives*, and by existing practices on the eves of May and Midsummer.

Passing on from the great luminary, it is worthy of notice that in the signs of the Zodiac nearly every animal there represented was an object of totemic worship. Leo, the lion, was inscribed on the coins of almost every ancient race and people long before the Christian Era, and among these were included our near neighbours *Hispania* and *Gallia*; Taurus, the bull and Capri-

cornus the goat enter as totems into the bases of Hindu worship. The latter, indeed, as also Aries, the ram, is a totem placed on the ancient coins of Italy and of the many islands of the Grecian Archipelago, "long," it is said, "before Jupiter was thought of." Apart altogether from the Zodiac, the serpent was the most ancient symbol of all. It was the tutelary of almost every race, of every tribe in every country and island in the world. It was placed as a god in temples dedicated to its worship; it was seen as a royal tiara in more than one kingly crown; it is seen in this our day as a prominent ornament in modern jewellery, and worn about the person in the brooch and the bangle. And while we can thus trace this symbol all down through the ages from prehistoric times dating back many thousands of years up to the present day—literally, "that old serpent"—it is very remarkable that throughout the whole range of literature in which this symbol is found, not a single instance is recorded of its great, yet gentle counterpart, the Lamb.

And then, as we turn to patriarchial days, we have as the ensigns of Judah, of Ephraim, and Dan, the lion, the ox, and the eagle respectively; the first and the last of these—the eagle especially—forming the heraldic symbol of so many of our modern nations—of France and Poland and Frankfort, of Spain and Germany and Russia, whose royal arms are a double-headed eagle, with Saint George and the Dragon at the foot—the lion regarded as a symbol of courage, and the eagle of swiftness combined with ferocity. Two more instances shall suffice, and in one of these we are specially interested. In Andrew Lang's "Custom and Myth," he speaks of the primitive Greek tribes as believing in their descent from animals and plants, known as their totem, and that they had an instrument called a "bull-roarer," described as a piece of wood to which a string was fastened, and that when whirled round produced a great din.

In conclusion, it is more than probable that in the experience of each of us this tutelary principle is or has been in full exercise. It may have been in a living form, fair, gentle, and beautiful; or, perchance, a sub-totem as seen in a letter, or a flower; it may be even in the figure-head of a vessel. For, one thinks of Lord Dufferin at an early period in his history, when in a moment of extreme peril far north of Spitzbergen, in his little schooner yacht (named after his betrothed, the "Ava") close to a huge berg, and in a fierce raging wind that drove the ice blocks with crushing force against the vessel. "In that moment," says Lord Dufferin, "I leaned over the bow in expectation of the crunch I knew must come, and thus apostrophized the fair face

of the figure-head that seemed to gaze so serenely on the cold white masses—'O, Lady, is it not now fit that thou shouldest befriended the good ship of which thou art the pride?'—an invocation of which his guardian angel, and one higher still, was then doubtless fully conscious, for the course of the winds was changed and his craft steered into safer waters.

Furthermore, in a paper read before the Scottish Geographical Society, on Russian Poland, by Dingrsted, he says—"Laplanders preserve the tribal divisions of landed property and of fishing grounds, and retain their totems as distinctive family marks. Women are called by the name of their husband; thus, a woman is called Ivan-cara, "John's wife"—Cara is Italian for "dear;" or Ivan agki, "John's old wife." He says also—"Laplanders never marry strangers, nor within the fourth degree of kinship." While on this subject, of special interest to any who may have married their cousins, there is a noteworthy statement by Dr. Tyler, in his learned work, "On the Laws of Marriage and Descent," who says, "in tabulating the nations of the world I found a group of 21 peoples whose custom as to the marriage of first cousins seemed remarkable, viz., that while affirming that the children of two brothers may not marry, nor the children of two sisters, yet the children of the brother may marry the children of the sister."

And lastly, as an English people, we have our symbol in the Lion, first inscribed on the ensigns of Judah, since then inscribed on the royal seals of Richard I., in 1195—the lion, a fit emblem in the animal world of power and majesty; the lion couchant, an emblem of peace; and the lion garde passant, ever in readiness to spring up, as he has done, for the putting down of oppression and wrong.

The heraldic symbol of Napoleon was an eagle rising up and grasping in both hands a thunderbolt, an allegorical rendering of his one ambition, to crush the surrounding empires, and most of all the little island "nation of shopkeepers." But the thunderbolt fell on the Belgian fields like a huge meteorite, crushing him in its fall, and the lion remained and remains untouched, for it embodies the very principle of our great moral power and influence and supremacy—a supremacy which extends over every nation in the world, and telling us plainly that the secret of that supremacy is, not that Britannia—otherwise our noble Queen—"rules the waves" by her fleet, but that she, in common with those over whom she reigns, ever stood out among all other countries in the van of true progress by upholding the principles of truth and of liberty, of right and of justice.

PUBLICATIONS, &c., RECEIVED.

The following Proceedings, publications and maps, &c., have been received since the issue of Vol. III., and for which the grateful acknowledgments of the Society are tendered to the donors :— A valuable series of Proceedings, from the Royal Geographical Society, London ; Proceedings of the Royal Colonial Institute and Imperial Institute ; Transactions of the Scottish Geographical Society, of Manchester, Liverpool, and Cornwall, and the Tyneside Geographical Societies ; Annual Reports of the British Association for Advancement of Science, Oxford, 1900, from the Hon. Sec., George Griffiths, Esq. ; Rules of Royal Society, London, from the Secretary. Also a series of volumes from the Royal Dublin Society ; Proceedings from Geographical Societies of Victoria, New South Wales, and Queensland ; from La Societe Geographe and La Societe Geographe Commerciale, Paris, Havre, Tours, Marseilles, Toulon, Nemhateloisse, Schleswig-Holstein, Heidelberg, Zurich, Lima, and Milano. Also reports of the American Geographical Society, the School of Geography, the American Academy of Arts and Sciences, the American Museum of Natural History, New York ; also four volumes and a large and valuable series of publications from the Smithsonian Institute, Washington ; publications of Treasury, from O. P. Austin, Esq., Washington ; pamphlets, Trade of Puerto Rico and Phillipine Islands, from Minister for Department of Agriculture, Washington ; Academy of Arts and Sciences, also three volumes Transactions of Natural History Survey, Madison, Wisconsin ; Report for 1900 of Missouri Botanical Garden, from W. Trelenze, Esq., St. Louis, Mo. ; Transactions of Philadelphia Museum and Canadian Institute ; Geographical Society of Grand Pacific, San Francisco. Also a series of valuable publications from Geological Survey and Royal Society of Canada ; from Port Augustana Library ; Journal from Dr. Granere Rock Island, Illinois, U.S. ; Dictionary of Liptha Language, from the Lieut.-Governor of Bengal ; also proceedings of Royal Asiatic Society of Bengal, Calcutta ; and Ceylon and Madras Museum ; University Calendar, from Tokio, Japan ; History of Norway, from Minister for Public Instruction, Christiana ; Proceedings of South African Society, Cape Town ; Royal Polynesian Society, Wellington, N.Z. ; also valuable series of 13 volumes, from New Zealand Institute, from Sir James Hector, Wellington, N.Z. ; Annals of

Queensland Museum, from C. W. de Vis, Brisbane ; Proceedings, from Royal Societies of Adelaide, Victoria, New South Wales, Queensland, and Tasmania ; Records of Australian Museum, Sydney, from S. Sinclair, Esq. ; Annual Report of Australasian Association, for 1898, and also pamphlet from Professor Liversidge, M.A., LL.D., F.R.S., University, Sydney ; "Science of Man," from Dr. Carroll, Sydney ; Catalogue of Scientific Literature, from Royal Society, Queensland. Reports of Departments of Mines, Lands and Agriculture Surveys, from the Ministers at Adelaide, Victoria, New South Wales, New Zealand, Queensland, and Perth ; publications of Aboriginal Carvings at Port Jackson and Broken Bay, from the Hon. Minister for Department of Mines and Agriculture, Sydney ; Goldmining Statistics, from the Under Secretary for Mines, Perth ; pamphlet, "Western Australia," from Victoria Public Library of Western Australia, Perth ; "Producers' Gazette," and "Land of Promise," and valuable series of maps, from the Hon. Premier, Perth. Also Geological Map of South Australia and coloured map of National Park, Belair, from W. Strawbridge, Esq., Surveyor General ; maps of late Hon. D. Carnegie's explorations ; one volume, "Australia to the Rescue," from the author, W. J. Buchanan, Esq. ; pamphlet, "From Amongst Tropical Islands," from Miss Chewings ; Annual Reports of Library and Museum, Adelaide, from the Director, Robert Kay, Esq. ; also framed copy of "The Observer," containing a record of Stuart's Diary, from R. Kyffin Thomas, Esq., President ; valuable series of documents, relating to late E. J. Eyre, explorer and Sir George Grey, presented by late Premier, Hon. F. W. Holder ; two volumes, "Fossil Remains of Diprotodon, &c., from the Royal Society of South Australia ; photos of Frenchman's Rock, Hog Bay, and of the late Ernest Giles, explorer, presented by Mr. T. Gill ; a pair of death shoes, by R. Bruce, Esq., and photo of chimney built at Mount Uley by J. McDouall Stuart, by D. Sinclair, Esq. ; photo of Gosse's Tree, from A. D. Breaden, Esq. ; and a canteen used by one of J. McDouall Stuart's party, presented by J. LeM. F. Roberts, Esq.

APPENDIX A.

EXPLORATION IN NEW SOUTH WALES IN 1844.

Letters from Mr. Edward John Eyre, Adelaide, to His Excellency Sir George Gipps, Sydney, offering to lead an exploring expedition into the interior of New South Wales should Sir Thomas L. Mitchell decline ; also letter from Sir George Grey, Governor of South Australia, to His Excellency Sir George Gipps, referring to Captain Sturt's explorations and his supposed discovery of an inland sea, in the interior of Australia ; found in the Plan Record Room, Department of Lands, Sydney, and forwarded to the Under Secretary, Adelaide. Placed at the disposal of this Society by the Premier, the Hon. F. W. Holder.

Adelaide, 28 November, 1844.

Dear Sir—

The "Emma" sailing to-day for Sydney, I take advantage of the opportunity to acquaint your Excellency that since my last letter early in November, informing your Excellency that I had taken my passage in the "Symetry" for England, and that I should most likely sail about the 7th December, I have learnt that the "Symetry" will not sail before the middle of December, and that it may probably be the end of that month, so that there is every chance that I may still be in Adelaide when the "Dorset" next arrives from Sydney. I have thought it desirable to acquaint your Excellency with this fact, not that I have any expectation that Sir T. Mitchell will decline to undertake the command of an expedition into the interior, and that thus the offer might come to me, but I have felt so interested and so anxious about this undertaking, and have so accustomed myself to look forward to engaging in it personally, that I cannot willingly divest myself of all hope of doing so until the very last, and most tenaciously cling to anything that affords even the slightest prospect of my wishes being gratified. Should, therefore, any circumstances arise previous to the sailing of the "Dorset" to induce your Excellency to honour me with the offer of the command of the proposed exploring expedition, it would probably be the best way to inclose any communication upon the subject under cover to the Governor here, that in the event of my having unfortunately sailed before the "Dorset"

arrives, your Excellency might receive an immediate reply by the return mail, and no time would then be lost. We have not heard anything further yet from the exploring expedition under Captain Sturt, but I am in daily expectation of the arrival of some natives from the Upper Districts of the Murray with despatches from that traveller, to tell of his progress and prospects, and either confirm or dispel the hopes that were raised by the account of the discovery of an inland sea. This question settled will, I think, finally decide the impracticability of penetrating the interior from the south. I cannot divest myself of the impression that Captain Sturt will eventually be compelled to fall back again upon the Darling, either by Lake Torrens or the Desert surrounding it. As soon as ever any further information reaches Adelaide relative to Captain Sturt's party, I will take the earliest opportunity of acquainting your Excellency with the result, feeling assured that your Excellency will feel greatly interested in the discoveries and prospects of this expedition.

I have the honour to be,

Dear Sir,

Yours, very truly,

EDWARD JOHN EYRE.

His Excellency Sir George Gipps.

Government House,

Adelaide, November 9th, 1844.

My dear Sir—

I feel much obliged to you for the copies of Mr. Threlkeld's Vocabulary which you were good enough to send me upon the 4th ult., and in reference to your observations in your note of the same date regarding Mr. E. J. Eyre, I think it may be interesting to you to know that he is about to proceed to Europe on leave of absence, upon the 1st of December next, and that he will therefore not be able to proceed upon any expedition from Sydney after that date. I received a few days ago since an official report from Captain Sturt, of which I enclose a copy for your information. Captain Sturt is now at Laidley's Ponds, upon the Darling, and thinks that he has discovered an inland sea. Captain Frome, the Surveyor General of this colony, was however deceived by similar appearances in the same country about twelve months since, and you will find from the enclosed extract from his report that the apparent sea turned out, when partially traversed, to be a sandy desert. We are all here agreed that there is every probability that Captain Sturt will find upon approaching the inland sea

that he has been misled by mirage, and that it is the eastern limit of the same desert that Captain Frome previously saw.

Believe me, my Dear Sir,

Very faithfully yours,

G. GREY.

His Excellency Sir George Gipps, &c., &c., &c.

Government House

Adelaide, November 15th, 1844.

My dear Sir—

I wrote to you a few days since in reply to a letter you had addressed to me regarding Mr. Eyre, and I incidentally alluded to the reports I had received from Captain Sturt. I have since thought that as Captain Sturt is travelling within the limits of your Excellency's Government you might like to be made acquainted with the details of the discoveries which have recently been made in the portion of Australia towards which Captain Sturt is moving. I have therefore requested Captain Frome to have a map prepared for your use (which shall be transmitted with this letter) showing the whole of the discoveries he made in September, 1843, and their relation to the country in which Captain Sturt supposes an inland sea to exist. This map will enable you to understand the reasons which make us apprehend that Captain Sturt is in error, yet as he was perfectly acquainted with Captain Frome's explorations, as well as with his reports regarding the country he had traversed and seen, it is to be supposed that he must have had strong grounds for making his recent statements. Copies of Captain Sturt's and Captain Frome's reports shall be put up with this letter.

Believe me, my dear Sir,

Very faithfully yours,

G. GREY

His Excellency Sir George Gipps, &c., &c., &c.

Adelaide,

7th November, 1844.

Dear Sir—

The Governor having shown me your Excellency's note of October last, stating that you were in expectation of hearing from Lord Stanley on the subject of an expedition from Sydney to Port Essington, and had delayed replying to my letter of the 24th August on this account, I have thought it only right to give your Excellency early information that I have recently applied for and

obtained 18 months' leave of absence from the colony and have taken my passage in the "Symetry," for England. I had been induced to this step from an impression that nothing would be attempted from Sydney this year, and in the hope that my presence in England might be the means of calling attention to this continent, and stimulate Lord Stanley to continue its further and complete exploration. I have also some hope that I may be able to change my present employment and get something better in this or some other colony. I have no scope for exertion where I am now, and have done all the good I can do towards establishing a friendly intercourse with the aborigines up the Murray to the Darling.

The Captain of the "Symetry" tells me he will sail on the 7th December, but it may possibly be a week later, and I can assure your Excellency that if in the meantime I hear that I am required in Sydney, I shall most gladly give up my voyage to England and shall hold myself prepared up to the very day of the "Symetry's" sailing to leave all and come up to Sydney by the first opportunity. I am greatly afraid, however, that from your Excellency's remark relative to Sir Thomas Mitchell there is but little hope for me that the offer of the command will ever come to me should an expedition be fitted out from Sydney. Sir Thomas would never decline so honourable an employment. I confess I shall envy any one the honour, but be the leader who he may. I shall feel great interest in the undertaking and most sincerely wish it success. It is an enterprise of as much difficulty and toil as its successful accomplishment will be of interest and credit. Your Excellency will be glad to hear that recent despatches from Captain Sturt bring satisfactory accounts from that traveller. The report sent down some few weeks ago of the reported massacre of a large party of Europeans on the Darling turns out to be without foundation. Captain Sturt not understanding the language of the Darling had misunderstood the natives, who instead of reporting the massacre recently of a party of Europeans were only describing Major Mitchell's visit there some years ago, and the deaths of the natives who were shot on that occasion. Captain Sturt says that his party were encamped at Weelyurhrah, the point from which I was compelled to return in December, 1843, owing to a very severe illness. He states that the creek I crossed on that occasion is "Laidley's Ponds," which he says does not come from the hills, but only from the channel by which the back waters of the Darling are thrown in season of flood into a lake to the western called Cowandilla. I did not recognise this feature as Laidley's Ponds when I crossed it in December, 1843, but I was

only on horseback and had no instruments to ascertain my latitude exactly. Previous to Captain Sturt sending his despatches, his assistant, Mr. Poole, had ridden to a hill about 150 feet high and 30 miles from the Darling, N.W. of Laidley's Pond. From that point he returned to Captain Sturt, and reported "that from the summit of the hill he saw lofty ranges to the north and north-west and water—a sea extending along the horizon from S.W. by W. to 130° east of north, in which there were numerous islands—the line of water was broken in places by hills behind which it passed, and he says it was of a dark-blue colour." Such is the account given by Mr. Poole, and it is evident from the tenor of Captain Sturt's letter that he believes it to be true, and talks of launching his boat immediately. We shall all be most anxious to hear again to have such good news confirmed, but I must confess I cannot divest myself of the belief that what Mr. Poole saw was only the effect of mirage and refraction. I have frequently seen very similar appearances myself, and I hold that Mr. Poole only saw the bed of Lake Torrens or the desert surrounding it. It seems to me to be physically impossible that there can be a deep blue sea in the position assigned to it. We hope, however, to hear again in a few weeks, our communication being kept up entirely by natives. The last letters we sent to Captain Sturt were taken from Moorundi to Laidley's Ponds, a distance of fully 300 miles, in eleven days, and his replies were brought down again in seventeen days, and these are the natives who have been so much dreaded and thought to be so savage and hostile towards Europeans..

Another account has just reached us of the result of a small party who went exploring from Port Lincoln a few weeks ago. They got a little beyond the Gawler Ranges (between Streaky Bay and the head of Spencer's Gulf) and were then obliged to return from want of water and feed—they had got to a level waste with large salt lakes and rugged, barren elevations here and there, a country approaching in character that around Lake Torrens. In returning, the leader of the party, Mr. Darke, was speared by the natives, and died in a very few hours afterwards. I believe the journals and sketches of the route will be published, but I have not yet seen them. If Captain Sturt has not found the inland sea, there is not the least hope for any party from the south, and your colony will be the only one for future efforts.

I have the honour to be,

Dear Sir,

Very sincerely yours,

EDWARD JOHN EYRE.

His Excellency Sir George Gipps.

EXTRACTS FROM THE "GOVERNMENT GAZETTES"
OF 1843 AND 1844..

Colonial Secretary's Office, Adelaide, Sept., 14, 1843.

His Excellency the Governor has been pleased to direct that the following Report, received from the Hon. the Surveyor-General, of the country to the eastward of Flinders Range, be published for general information.

By His Excellency's Command.

A. M. MUNDY,
Colonial Secretary.

The most northern point at which I found water last year, was near the top of a deep ravine of the Black Rock Hills, in lat. $32^{\circ} 45' 25''$, where I left my dray and the larger portion of my party on the 20th July, taking on only a light spring cart, the bottom filled entirely with kegs containing sufficient water for our horses for nearly three days, and provisions for one month, which was as much as the cart would contain.

My object being to ascertain the boundaries of the southern termination of the eastern branch of Lake Torrens as laid down by Mr. Eyre, and also the nature of the country between Flinders Range, as high as the parallel of Mount Hopeless, and the meridian of 141° (the eastern limits of the Province), I kept at first a course as near N.N.E. as the nature of the ground would admit, to ensure my not passing to the east of this extremity of the lake, from whence I intended, if possible, to pursue a line nearly north-east, as far as my time and the means at my disposal would allow me, hoping to reach the high land laid down by Sir Thomas Mitchell, on the right banks of the Darling, to the north of Mount Lyell, and thus ascertain if any reasonable hope existed of penetrating at some future time towards the interior from thence. The continued heavy rains which had fallen for more than three weeks before my departure from Adelaide on the 8th July, and for nearly a fortnight afterwards, had left the surface water in pools on the scrubby plains, and in some of the ravines; but on proceeding north, it was evident that these rains had not been there so general or so heavy, though by steering from point to point to the hills, after crossing the Black Rock Range at Rowe's Creek, I was able to find sufficient water for the horses and to replenish the kegs every second or third day. From this spot, the plains, as well as the higher land, appeared evidently to dip away to the north-east, the barren hills all

diminishing in elevation, and the deep water-courses from Flinders Range all crossing the plains in that direction. In one of these water courses, the Siccus (lat. about $31^{\circ} 55'$), whose section nearly equals that of the Murray, there were indications of not very remote floods plainly marked by large gum trees lodged in the forks of the standing trees, and lying high up on its banks, on one of which I remarked dead leaves still on its branches ; and in another creek (Pasmore River), lat. $31^{\circ} 29'$, a strong current was running at the spot where we struck it (owing, I suppose, to recent heavy rain among the hills from whence it has its source), but below this point the bed was like that of all the other creeks, as dry as if no rain had ever fallen, and with occasional patches of various shrubs and salt water tea-tree growing in it. After crossing the low ridge above Prewitt's Springs, lat. $31^{\circ} 45'$, forming the left bank of the basin of the Siccus, the plain extended between the north and east as far as the eye could reach, and the lurid glare on the horizon, as we advanced northward, plainly indicated the approach of Lake Torrens, which, from the direction I had followed, I expected to turn about this point. I was obliged, however, to continue a northerly course for the sake of water, which I could only hope to find in the ravines of the hills on our left, as high as the parallel of $30^{\circ} 59'$, where the Lake was visible within fifteen or sixteen miles, and appeared from the high land to be covered with water, studded with islands, and backed on the east by a bold, rocky shore. These appearances were, however, all deceptive—being caused solely by the extraordinary refraction, as on riding to the spot on the following day, not a drop of water was to be seen in any direction. The islands turned out to be mere low, sandy ridges, very scantily clothed with stunted scrub on their summits, and no distant land appeared anywhere between the north and south-east, though from the hills, above the camp of the previous night, I could discern, with the aid of a very powerful telescope a ridge of low land, either on the eastern side of the Lake or rising out of it, distant at least seventy miles, rendered visible at that distance by the excessive refractive power of the atmosphere on the horizon. A salt crust was seen at intervals on the surface of the sand at the margin of the Lake, or, as it might be more properly called, the Desert, but this appearance might either be caused by water brought down by the Siccus and other large water-courses spreading over the saline soil in times of flood or by rain, and appeared to me no proof of its being ever covered with water for any period of time. A few pieces of what appeared drift timber, were also lying about its surface. The sand, as we

advanced farther east, became more loose and drifting and not a blade of grass or any species of vegetation was visible, rendering hopeless any attempt to cross it with horses. This point of the Lake shore being by Mr. Eyre's chart about thirty miles to the westward of where I found it I thought it advisable to push further north in the direction of the highest point of the range, which I imagined was probably his Mount Serle; for though it was not to be expected that Mr. Eyre, whose principal and almost sole object was the discovery of a road into the interior, would at the same time have been able to lay down the position of his route with the same accuracy that might have been expected from a Surveyor, this difference of longitude prevented my being certain of the identity of the spot, or that the range on our left might not after all be another long promontory running to the north, similar to that on the western side of which was Mr. Eyre's course. The appearance of the country, however, from the hills close under Mount Serle (for the perpendicular cliffs on the east side of this range of hills prevented my ascending to their summit without turning them among the ranges, for which I had not then time), convinced me at once, from its perfect accordance with the description given by Mr. Eyre, that his eastern arm of Lake Torrens was the sandy desert I had left, its surface being about ♦ three hundred feet above the level of the sea; and our two converging lines having thus met at Mount Serle, I knew it was useless to advance further in the same direction to a spot which he had named, from the impossibility of proceeding beyond it, "Mount Hopeless."

I was thus forced to return to Pasmore River as the nearest point from whence I could cross to the low hills to the eastward, south of Lake Torrens; and from thence I sent back to the Depôt two men of the party, and three horses—the former for the sake of their rations, and the latter on account of the probable difficulty I should have in procuring water—taking on with me only Mr. Henderson and Mr. Hawker on foot, with the light cart and one policeman. The second evening I made the most northern of these hills, but could not find a drop of water in any of them; and having unluckily lost the policeman, who had crossed in front of the dray and got entangled in the dense scrub, I was detained three days riding upon his tracks from the Depôt at the Black Rock Hill, which he reached in safety after being out five days without food. The cart in the meantime had been obliged to leave the spot where I had left it, for want of water—having been out six days without obtaining any but what we carried in the kegs; and when I overtook it we had not

sufficient provisions for another attempt, the period of one month, for which they were intended to last having already nearly expired.

I regret very much not having been able to reach, at all events, within sight of Mount Lyell; but where I turned, I could plainly see the whole country within fifty or sixty miles of the boundaries of the Province, and can speak with almost as much confidence of its absolute sterility, as if I had actually ridden over it. It would certainly be possible in the wet season to take a small party from Prewitt's Springs across to this hill of Sir Thomas Mitchell (distant about one hundred and sixty six miles), by carrying on water for eight or ten days; but no further supply might be found short of the Darling (eighty miles beyond Mount Lyell), on which river it would be madness to attempt anything without a considerable force on account of the natives; and the same point might be reached in nearly as short a time, and with much more certainty, with any number of men that might be considered necessary by ascending the Murray as high as the Laidley Pond, and proceeding north from thence.

On returning to the Depot, I moved the party down to Mount Bryan, and made another attempt on the 25th August, with Mr. Henderson, and one man leading a pack horse, to the north-east, hoping from the heavy rains which had fallen during the past two months to find sufficient water in the ravines to enable me to push on for several days. The second day I crossed the high range I had observed from the Black Rock Hills and Mount Bryan, for the southern termination of which Colonel Gawler steered when he left the northern bend of the Murray in December, 1839; but though these hills had an elevation of twelve hundred or fourteen hundred feet above the plain, there was no indication of rain having fallen there since the deluge. This want of water prevented my proceeding further to the north-east; but from the summit of the highest of these hills (Mount Porcupine), I had a clear view of the horizon in every direction, and a more barren, sterile country cannot be imagined.

The direction of the dividing ridge between the basin of the Murray and the interior desert plain was generally about north-east from the Black Rock Hills (the highest point north of Mount Bryan), gradually decreasing in elevation, and, if possible, increasing in barrenness. The summits of these hills I found invariably rock—generally sandstone—the slopes covered with dense brush, and the valleys with low scrub, with occasional small patches of thin wiry grass. I was obliged to return on the third day and reached the foot of Mount Bryan on the fourth

evening, at the southern extremity of which hill the horses were nearly bogged in the soft ground, though only fifty miles distant from land where the dust was flying as if in the midst of summer.

It appears to me certain from the result of these different attempts that there is no country eastward of the high land extending north from Mount Bryan, as far as Mount Hopeless, a distance of about three hundred miles, as far as the meridian of 141° (and probably much beyond it) available for either agricultural or pastoral purposes; and that, though there may be occasional spots of good land at the base of the main range, on the sources of the numerous creeks flowing from thence towards the inland desert, these must be too limited in extent to be of any present value.

The nature of the formation of the main range I found generally ironstone, conglomerate and quartz, with sandstone and slate at the lower elevation. At the points of highest elevation, from Mount Bryan northward, igneous rocks of basaltic character protruded from below, forming rugged and fantastic outlines.

At one spot particularly, about lat. 31° , there were marked indications of volcanic action, and several hollows resembling small craters of extinct volcanoes, near one of which we found a small spring of water, maintaining always a temperature of about 76° Fahrenheit, when the thermometer standing in the water in the kegs stood at 52° , and in the atmosphere at 54° .

The accompanying sketch of the country from Mount Byran northwards, will probably explain its character better than any written description. The altitudes, marked at the different spots where they were observed, were obtained by the temperature of boiling water, as observed by two thermometers; but, as they were not graduated with sufficient minuteness for such purposes, the results can only be considered approximate.

E. C. FROME,

Capt. Royal Engineers,

Surveyor-General.

September 14th, 1843.

Colonial Secretary's Office, Adelaide, November 7, 1844.

His Excellency the Governor directs the publication of the following letter recently received from Captain Sturt, reporting the progress of the Central Australian Exploring Expedition.

By His Excellency's Command.

A. M. MUNDY,

Colonial Secretary.

Sir—Feeling assured that the Governor would be anxious to hear from me as soon as possible after the receipt of my letters from Lake Victoria, I should have taken the earliest opportunity of forwarding despatches to his Excellency after I had ascertained whether the reports I had heard of the massacre of a party of Overlanders at the lagoons on the Darling was founded in fact or not ; but having been obliged to cross over from the anabranch of the Darling to that river itself for water, and its unlooked for course having taken me greatly to the eastward, I had no opportunity by which to send to Moorunde, although I was most anxious to allay any apprehensions my former letter might have raised as to the safety of my party. I tried to induce several natives to be the bearers of my despatches, but they seemed unwilling to undertake so long a journey ; the arrival, therefore, of a messenger from Moorunde was a most welcome occurrence, as he proposes returning to that place immediately, and will be the bearer of this communication to you.

In continuing, for His Excellency's information, the detail of the proceedings of the expedition under my order since I last addressed you, I have the honour to state that I had advanced a considerable way up the Darling before I ascertained satisfactorily the true grounds of the report I had heard at Lake Victoria, and was enabled to dismiss all further anxiety on the subject from my mind.

It referred to the affray which took place on the Darling, opposite to Laidley's Ponds, between Major Mitchell and the natives ; and I conclude that the circumstances of our being about to proceed to the same place, recalled a transaction which had occurred eight years ago to their minds ; for we can trace a connection between the story we heard at the Lake and what we have heard on the spot ; but all the circumstances were at first told to us with such minuteness, that coupling them with the character Major Mitchell has given of the Darling natives and the generally received opinion of their ferocity and daring, we could hardly refuse giving a certain degree of credit to what we heard ; more especially as it was once or twice confirmed by natives with whom we communicated on our way up the river. I really feared we should come into collision with these people, despite my reluctance to proceed to extremities ; but it will be satisfactory to his Excellency, as I trust it will to Lord Stanley, to know that we have passed up the Darling on the most friendly terms with the native tribes, insomuch that I may venture to hope that our intercourse with them will be productive of much good. So far from the show of any hostility, they have invariably

approached us unarmed, nor have we seen a weapon in the hands of a native since we touched upon the river. They have constantly slept at our fires, and shown by their manner that they had every confidence in us, bringing their wives and children to the camp, nor at any time giving us the least annoyance, but always showing a willingness to save us trouble, and to do whatever we desired them to do. Nothing indeed could have been more satisfactory to us than our intercourse with these poor people, or more amusing than the spirits and feelings to which they have given way before us, when uncontrolled by fear. Many indeed have continued with us for some time, and have evinced sincere and marked sorrow at leaving us. I have made it a rule to give blankets to the old and infirm, and tomahawks and knives to the young men, and they perfectly understand the reason of this distinction. Finding, too, that they consider kangaroos as their own property, we have almost invariably given them all the animals the dogs have killed, and have endeavoured to convince them that we wish to be just, and have the kindest feelings towards them. In this humane duty I have been most cordially assisted both by Mr. Poole and Mr. Browne, and I must add, by the conduct of my men towards the natives, which reflects very great credit upon them. We have received very great assistance from our guides, who have always smoothed the way to our communication with the different tribes; and I have earnestly to recommend Nadbuck, who has accompanied us from Moorunde to this place, to the favour of the Governor, and to request that he may be rewarded in such manner as his Excellency may think fit from the funds of the expedition. We find that Mr. Eyre's influence has extended to this place, and that he is considered in the highest light by all the natives along the Darling. In their physical condition they are inferior to the natives of the Murray in size and strength, but we have seen many very handsome men, and, although diminutive in stature, exceedingly well proportioned. The tribe at Williorara, Laidley's Ponds, numbers about eighty souls; the greater proportion women and children. One of them, Topar, accompanies us to the hills with another native, Toonda, who has been with us since we left Lake Victoria, and who is a native of this tribe. He is a very singular and remarkable man, and is rather aged, but still sinewy and active; Topar is young and handsome, active, intelligent, and exceedingly good natured—with them I hope we shall be able to keep up our friendly relations with the natives of the Interior.

I have to request that you will thank His Excellency for the

prompt assistance he would have afforded us ; but I am sure it will be as gratifying to him as it is to us to know that it is not required.

As I reported to you in my letter of the 17th September, I left Lake Victoria on the following day, and crossing the country in a south-easterly direction, reached the Murray after a journey of about fifteen miles, over plains, and encamped on a peninsula formed by the river and a lagoon, and on which there was abundance of feed. We had observed numerous tracks of wild cattle leading from the brush across the plains to the river, and at night our camp was surrounded by them. I hoped, therefore, that if I sent out a party in the morning, I should secure two or three working bullocks, and I accordingly detached Mr. Poole and Mr. Browne, with Flood my stockman and Mack, to run them in ; but the brush was too thick, and in galloping after a fine bull, Flood's carbine went off, and carried away and broke three of the fingers of his right hand. This unfortunate accident obliged me to remain stationary for a day ; but we reached the junction of the anabranch of the Darling with the Murray on the 23rd, and then turned for the first time to the northward.

We found the anabranch filled by the back waters of the Murray and ran up it for two days, when the water in it ceased and we were obliged to cross over to the Darling, which we struck on an east course about eighteen miles above its junction with the Murray. It had scarcely any water in its bed, and no perceptible current—but its neighbourhood was green and grassy, and its whole prospect pleasing. On the 27th we thought we perceived a stronger current in the river, and observed small sticks and grass floating on the water, and we were consequently led to believe that there was a fresh in it ;. and as we had had rain, and saw that the clouds hung on the mountains behind us, we were in hopes the supply the river was receiving came from Laidley's Ponds. On the following morning the waters of the Darling were half-bank high, and from an insignificant stream it was at once converted into a broad and noble river, sweeping everything away on its turbid waters at the rate of three or four miles an hour. The river still continues to rise, and is fast filling the creeks and lagoons on either side of it. The cattle enjoyed the most luxuriant feed on the banks of the river—there being abundance of grass also in its flats, which far surpass those of the Murray both in richness of soil, and in extent. I cannot but consider the river as a most valuable feature of the interior ; many a rich and valuable farm might be established upon it. Its seasons appear to be particularly favourable, for we have had

gentle rains ever since we came upon it. Its periodical flooding is also at a most favourable period of the year, and its waters are so muddy that the deposit must be rich, and would facilitate the growth of many of the inter-tropical productions, as cotton, indigo—the native indigo growing to the height of three feet—maize, or flax; whilst, if an available country is found in the interior, the Darling must be the great channel of communication to it. The country behind the flats is sandy and barren, but it would in many places support a certain number of stock, and might be found to be of more value than appearances could justify me in stating; and I would beg to be understood, in speaking of the Darling, that I only speak of it as I have seen it. The summer sun probably parches up the vegetation and unclothes the soil; but such is the effect of summer heat in all similar latitudes, and that spot should be considered the most valuable where the effect of solar heat can be best counteracted by natural or artificial means. I had hoped, as I have stated, that the Darling was receiving its accession of waters from the Williorara (Laidley's Ponds); but on arriving on its banks we were sadly disappointed to find, instead of a mountain stream, a creek only connects the river with Cawndillah Lake; instead of supplying the Darling with water, it was robbing it, and there was scarcely a blade of vegetation on its banks. I was therefore obliged to return to the Darling, and to encamp until such time as I should determine on our next movement. From some hills above the camp, we had a view of some ranges to the north-west and north, and I detached Mr. Poole on the 4th to ascertain the nature of the country between us and them, before I ventured to remove the party; more especially as the natives told us the interior beyond the ranges was perfectly impracticable. This morning Mr. Poole returned, and informed me that, from the top of the ranges he ascended,* he had a view of distant ranges to the north and north-west, as far as he could see; that from south-west to west to 13° east of north, there was water extending, amidst which there were numerous islands; that there was a very distant peak, which appeared to be surrounded by water, which showed as a dark blue line along the horizon. The country between him and the more distant ranges appeared to be level, and was similar in aspect the country we had traversed when approaching the hills, which

* Position of Mr. Poole, as nearly as it can be ascertained—

Longitude E. 141° 46' Latitude S. 32° 4'

Position from which Captain Frome first saw Lake Torrens as described in the annexed article of his Report, dated September 14, 1843—

Longitude E. 139° 25' Latitude S. 30° 59'

were covered with spear grass, a grass of which the animals are fond, and thin green shrubs. I will not venture a conjecture as to the nature of the country whose features have been thus partially developed to us. How far these waters may stretch, and what the character of the ranges is, it is impossible to say, but that there is a good country at no great distance, I have every reason to hope. Mr. Poole states that the small scolloped parraquets passed over his head from the north-west in thousands; and he observed many new birds. I am therefore led to hope that, as these first are evidently strong on the wing on their arrival here, that the lands from which they come are not very remote from us. So soon as I shall have verified my position in a satisfactory manner—which a clouded sky has hitherto prevented my doing—we shall move to the ranges, and leaving my drays in a safe place, shall proceed with the horse teams to a closer examination of the country, and if I should find an open sea to the north-west shall embark upon it with an ample supply of provisions and water, and coast it round. The reports of the fine interior, which we have heard from the natives, are so contradictory that it is impossible to place any reliance in them; but Toonda informs us that the water Mr. Poole has seen is fresh—but as we are not more than two hundred and fifteen feet above the sea, and are so near Lake Torrens I can hardly believe that such can be the case. It is a problem, however, that will now very soon be solved, and I most sincerely trust this decided change in the barrenness of the land will lead us to a rich and available country.

I have great pleasure in reporting to you the continued zeal and anxiety of my officers and the cheerful assistance they render me. I have found Mr. Plesse of great value, from his regular and cautious issue of the stores and provisions; and Mr. Stuart extremely useful as draftsman. Amongst my men, I have to particularise Robert Flood, my stockman, whose attention to the horses and cattle has mainly insured their fitness for service and good condition; and I have every reason to feel satisfied with the manner in which the men generally perform their duties.

I have to apologise for the hurried manner in which this letter is written, and beg to subscribe myself,

Sir, your most obedient servant,

CHARLES STURT.

Williorara, October 16th, 1844.

Colonial Secretary's Office, Adelaide, November 7, 1844.
His Excellency the Governor directs the re-publication of the following extract from the Report of the Hon. the Surveyor-General, dated 14th September, 1843.

By His Excellency's Command.

A. M. MUNDY,

Colonial Secretary.

After crossing the low ridge above Prewitt's Springs, lat. $31^{\circ} 45'$, forming the left bank of the basin of the Siccus, the plain extended between the north and east as far as the eye could reach, and the lurid glare on the horizon as we advanced northward plainly indicated the approach to Lake Torrens, which, from the direction I had followed, I expected to turn about this point. I was obliged, however, to continue a northerly course for the sake of water, which I could only hope to find in the ravines of the hills on our left, as high as the parallel of $30^{\circ} 59'$, where the lake was visible within fifteen or sixteen miles, and appeared from the high land to be covered with water, studded with islands, and backed on the east by a bold rocky shore. These appearances were, however, all deceptive—being caused solely by the extraordinary refraction; as, on riding to the spot the following day, not a drop of water was to be seen in any direction. The islands turned out to be mere low sandy ridges very scantily clothed with stunted scrub on their summits, and no distant land appeared any where between the north and south-east; though from the hills above our camp of the previous night I could discern, with the aid of a very powerful telescope, a ridge of low land either on the eastern side of the lake or rising out of it, distant at least seventy miles, rendered visible at that distance by the excessive refractive power of the atmosphere on the horizon. A salt crust was seen at intervals on the surface of the sand at the margin of the lake, or, as it might be more properly called, the Desert; but this appearance might be caused by water brought down by the Siccus and other large water courses spreading over the saline soil in times of flood, or by rain, and appeared to me no proof of its being ever covered with water for any period of time. A few pieces of what appeared drift timber were also lying about its surface. The sand, as we advanced farther east, became more loose and drifting, and not a blade of grass or any species of vegetation was visible; rendering hopeless any attempt to cross it with horses. This point of the lake shore being, by Mr. Eyre's chart, about thirty miles to the westward of where I found it, I thought it advisable to push farther north in the direction of

the highest point of the range, which I imagined was probably his Mount Serle; for though it was not to be expected that Mr. Eyre, whose principal and almost sole object was the discovery of a road into the interior, would, at the same time, have been able to lay down the position of his route with the same accuracy that might have been expected from a Surveyor, this difference of longitude prevented my being certain of the identity of the spot, or that the range on our left might not, after all, be another long promontory running to the north, similar to that on the western side of which was Mr. Eyre's course. The appearance of the country, however, from the hills close under Mount Serle (for the perpendicular cliffs on the east side of this range of hills prevented me ascending to their summit without turning them among the ranges, for which I had not then time), convinced me at once, from its perfect accordance with the description given by Mr. Eyre, that his eastern arm of Lake Torrens was the sandy desert I had left, its surface being about three hundred feet above the level of the sea; and our two converging lines having thus met at Mount Serle I knew it was useless to advance further in the same direction to a spot which he had named, from the impossibility of proceeding beyond it, "Mount Hopeless."

Colonial Secretary's Office, Adelaide, November 7, 1844.

His Excellency the Governor has been pleased to direct the publication of the following documents, containing intelligence which His Excellency has heard with much regret.

By His Excellency's Command

A. M. MUNDY,

Colonial Secretary.

Government Residency, Port Lincoln,

November 2nd, 1844.

Sir—It is my mournful duty to apprise you, for the information of his Excellency the Governor, that Mr. Darke, who with an exploring party left Port Lincoln on the 29th August last, died on the 24th ultimo, from injuries inflicted by natives unknown.

Mr. Theakston, and other two individuals, who composed Mr. Darke's party, arrived in Port Lincoln this day. In the affidavits of Mr. Theakston and James Howard, copies of which are herewith sent, will be found the particulars of this lamentable occurrence.

The ignorance of bread evinced by these natives, and the consternation which the sound of a gun appears to have caused

among them, lead me to the conclusion that they have not had previous communication with Europeans ; an opinion in which Mr. Theakston agrees.

I have, &c.,

CHARLES DRIVER, J.P.

Government Resident.

To the Hon. the Colonial Secretary.

SOUTH AUSTRALIA.

(To Wit)

John Henry Theakston, of Adelaide, in the Province of South Australia, gentleman, maketh oath and saith :—On Wednesday the 23rd day of October last, I was sitting in a tent at a spot about one hundred and fifty miles from Port Lincoln, in a northerly direction. Mr. John Charles Darke had left the tent about a minute, when I heard him call out. I immediately ran towards the spot with my gun ; saw a native in the act of throwing a spear ; fired at the native, who ran away ; I then ran to the spot where the native had stood, when I saw Mr. Darke on the ground, with three spear wounds. I saw about twenty other blacks ; but all ran away and I saw no more of them. Mr. Darke had no weapon with him when he left the tent. I caused him to be carried back to the tent. He died from the effects of the spear wounds on Thursday the 24th October, at five minutes before midnight.

Natives had accompanied our party the whole of the preceding day, and Mr. Darke had made presents to them of tools, &c. ; also of sugar and damper, the latter of which they would not eat.

Signed.

JOHN HENRY THEAKSTON.

Sworn before me, at Port Lincoln, this second day of November.
one thousand eight hundred and forty-four.

CHAS. DRIVER, J.P.,

Government Resident.

SOUTH AUSTRALIA.

(To Wit)

James Howard, of Adelaide, in the Province of South Australia, labourer, maketh oath and saith :—On the 23rd day of October last, at about eight o'clock in the morning, I was outside Mr. Darke's tent ; I saw Mr. Darke go a short distance from the

tent towards the scrub ; heard Mr. Darke make an exclamation which was answered by the blacks ; I followed Mr. Theakston to the spot ; Mr. Theakston fired, when I saw several blacks run away ; I then saw Mr. Darke who was wounded by three spears ; I helped to carry him to the tent ; Mr. Darke died the day after a little before midnight.

Signed.

JAMES HOWARD.

Sworn before me at Port Lincoln, this second day of November.
one thousand eight hundred and forty-four.

CHAS. DRIVER, J.P.,

Government Resident.

APPENDIX B.

North Kensington, South Australia,

25th May, 1901.

The President of the Royal Geographical Society of Australasia,
South Australian Branch, Adelaide.

Sir—

One object of the proposed Antarctic Scientific Expedition is, I believe, to ascertain the geographical position of the South Magnetic Pole. If so, it may be of interest to those concerned in making arrangements for the work to know beforehand that the lines indicated by the compass needle throughout Australia converge approximately towards a point situated in latitude $74^{\circ} 30'$ S. and longitude 125° E.

The data upon which I rely for this statement are the declination of the compass at the principal Australian ports and cities, as given on the Admiralty charts for 1900, and as recorded by the Survey Departments of the various States. The angle that the compass needle makes with the true meridian at such places has been plotted by me with great care on a map projected for the purpose, and subsequently verified by calculations in which spherical trigonometry has been employed ; with the result that the lines are found to meet within a circle having a radius of 50 miles and its centre as before stated.

Similar magnetic lines from New Zealand—judging by the somewhat meagre data at my disposal—intersect with a circle having a radius of 50 miles and its centre in lat $74^{\circ} 30'$ S., long. 136° E.

The position assigned for the South magnetic pole by Captain L. J. Duperrey, a noted French hydrographer, was in lat. 75° S., long. 138° E., i.e., with this latter circle; by Sir J. C. Ross, in lat. $78\frac{1}{2}^{\circ}$ S., long. $147\frac{1}{2}^{\circ}$ E.; and by Sir Fredk. Evans in lat. 65° S., long. 140° E.; but all these points are a considerable distance from any longitude of the pole that could be inferred from the declinations observed in Australia; and the inclination or dip I regard as a less important factor at so great a distance in fixing its longitude.

Doubtless, the positions determined by such eminent authorities as those quoted are compatible with observations in the vicinity of the alleged poles; but, should any one of these positions be confirmed, the convergence of Australian declinations to the point I have indicated (latitude $74^{\circ} 80'$ S., long. 125° E.) appears to me to demand some explanation by scientists, and I respectfully submit this letter to the Geographical Society in the hope that it may lead to an investigation being made as near as possible to this inaccessible region to decide whether a centre of magnetic attraction actually exists there or not.

Specimens of the calculations made by me in connection with this subject are appended hereto.

I am, Sir,

Yours faithfully,

CHAS. HOPE HARRIS.

Specimen of calculations made for finding approximate position of intersection of lines of Magnetic Declination in Australia (or Magnetic Pole).

ADELAIDE. Given observed dip, $63^{\circ} 14'$ and mean observed declination, $5^{\circ} 50'$ East; To find position of Magnetic Pole.

Tan. mag. lat. = twice tan of half-dip

$$63.14 \div 2 = 31.37 \text{ tan. } 0.61561$$

2

$$1.23122 \text{ tan. } 50.55 = \text{mag. lat. of Adelaide}$$

$$34.55 = \text{lat. of Adelaide}$$

$$16.00 \text{ co. lat. of Pole}$$

$$\therefore 74.00 \text{ lat. of Pole}$$

$$\text{Dif. lat.} = 39.05 \text{ sin. } 9.79965$$

$$\text{Declin.} = 5.50 \text{ tan. } 9.00930$$

$$\left. \begin{array}{l} \text{Arc of great} \\ \text{circle} \\ \text{approx.} \end{array} \right\} 3.41 \text{ tan. } 8.80895$$

$$\begin{array}{r} 3.41 \text{ sin. } 8.80782 \\ \text{Lat. of Pole } 74.00 \text{ sec. } 10.55966 \end{array}$$

$$133.85 \text{ long. of Adelaide}$$

$$9.36748 \text{ sin. } 13.30 \text{ dif. long. Adelaide and Pole}$$

$$125.05 = \text{long. of Pole}$$

MOUNT GAMBIER. Given Magnetic Pole in lat. 74° 00' and long. 125° 00' : To find declination at Mount Gambier.

Lat. of Mount Gambier	=	37·50	Long. of Mount Gambier	=	140·45
Colat. of " "	=	52·10	Long. of Pole	=	125·00
Colat. of Pole	=	16·00°			
					2) 15·45
		36·10 ÷ 2 = 18·05	= ½ dif.		
		68·10 ÷ 2 = 34·05	= ½ sum.	½ dif long.	7·52
10·85959	cotan.	7·52	cotan.	10·85959	
9·97800	cos.	18·05	sine	9·49192	
10·08185	sec.	34·05	cosec.	10·25150	
10·91944	tan.	83·08			
		76·00	tan.	10·60301	
		7·08	= declination.		

Calculating from the same pole (lat. 74°, long. 125°) by this method, the declination at other places is as follows :—

Innamincka ...	...	...	5 52 east
Alice Springs ..	...	...	3.18 "
Eucla, W.A. ...	...	...	1.35 "
Perth, W.A. ...	...	...	3 42 west

The preceding results show that declinations calculated from this pole agree very closely with recent chart values, and other reliable observations in South and Western Australia ; but provisional calculations for the Eastern States show that their lines of Declination intersect a little further south, as detailed below :—

Place.	Lat.	Long.	Pole Lat	Pole Long.	Calculated Declination.
Melbourne ...	37.50	144.59	74.40	125	8.26
Hobart ...	42.54	147.21	75.00	125	10.14
Sydney ...	33.52	151.12	74.40	125	9.54
Brisbane ...	27.28	153.07	74.30	125	9.35

A change of one mile in the assumed position of the Magnetic Pole would cause a change of about one minute in declination at any of the places mentioned. Therefore, declinations at any given place varying as much as half a degree above or below those given herein would meet within a circle of 50 miles radius.

C. H. H. 25/5/01.

Royal Geographical Society of Australasia.

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to be paid out of my personal Estate, and to be devoted to the
objects of the Society; and the receipt of the Honorary Treasurer
of the said Society shall be a sufficient discharge for same.

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OF THE

Royal Geographical Society

OF

Australasia :

SOUTH AUSTRALIAN BRANCH.

SESSION 1901-1902.

VOL. V.

ADELAIDE :

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CONTENTS.

	PAGE.
Annual Address of President - - - -	17
Annual Meeting, Report of - - - -	17
Attendance Roll of Members of Council - - -	16
Bonney, Charles: Autobiographical Notes - -	82
Certificate of a Candidate for Election, Form of - -	8
Council Meetings during the Year 1901-2 - -	9
Constitution and Rules of the Society - - -	1
Davidson's Explorations in the Northern Territory -	29
Everard, Dr.: Early Reminiscences - - -	77
Eyre, Edward John: Rescue of, by Captain T. Rossiter -	116
Explorations by Sea on the South-Western Coast of Australia prior to 1801 - - - -	113
Flavel, William: Recollections of Early Colonial Life -	103
Flinders' Centenary: Port Lincoln District - -	45
Kangaroo Island - - -	52
Mount Lofty - - -	54
Encounter Bay - - -	58
Holtze, Maurice, F.L.S., &c.: Lecture on the Northern Territory - - - - - APPENDIX,	17
Legacy, Form of - - - - -	8
Library, Additions to, during the Year - - -	120
Maurice, R. T.: Explorations North of Fowler's Bay -	33, 40
Mantegani, Mrs. Helen: Early Historical Recollections in South Australia - - - -	70
Members of the Society, List of - - - -	v.
Mitton, R. C.: Early Recollections of Hindmarsh -	80
Parsons, Hon. J. Langdon, M.L.C.: Lecture on the Nor- thern Territory - - - - - APPENDIX,	1
Rules and Constitution of the Society - - -	1

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Dobbie, A. W., J.P.	Riddoch, Geo., J.P.
Dobbie, A. H.	Sanders, C. J.
Doswell, F. E.	Sanderson, J. V.
Downer, A. G.	Saunders, A. T.
Duncan, Hon. J. J., M.L.C.	Simpson, A. M., J.P.
Duncan, W. H., M.P.	Simpson, A. A.
Eitel, Rev. Dr., M.A., Ph.D.	Sholl, L. H., J.P.
Foster, Hon. R. W., M.P.	Scott, Henry, J.P.
Gall, T. B.	Sowden, W. J., J.P.
Gartrell, Jas., J.P.	Smith, Sir E. T., K.C.M.G.
Genders, J. C. J.P.	Smith, R. Barr, J.P.
George, Miss	Smith, T. Barr
Giles, F. W.	Smith, E. M., J.P.
Gill, Thos., J.P.	Snow, F. H., J.P.
Gill, H. P.	Stewart, Graham
Girdlestone, Rev. H., M.A.	Strawbridge, W., J.P.
Gordon, John	Stock, R. A., J.P.
Gordon, Jas., S.M.	Tepper, J. G. O.
Goode, C. H., J.P.	Toms, S., J.P.
Goode, M.	Thomas, J. Edwin, J.P.
Greenwood, W. B.	Thomas, R. K., J.P.
Hawker, E. W., J.P.	Vicars, Jas.
Holden, J. H.	Van Senden, E. W.
Holtze, M. J., F.R.G.S.	Wallis, F. S.
Honeywill, W.	Waterhouse, H. W.
James, Dr.	Whitham, C. L.
Jenkins, Hon. J. G., M.P.	Wood, Peter
Jones, J. W., J.P.	Wilkinson, W. B., J.P.
Joyner, E. V.	Wright, G. S. J.P.
Jury, G. A., J.P.	

CONSTITUTION AND RULES

OF THE

Royal Geographical Society of Australasia

(SOUTH AUSTRALIAN BRANCH.)

The Royal Geographical Society of Australasia (South Australian Branch) was founded at a meeting of gentlemen held at the Town Hall, Adelaide, on the 10th July, 1885.

The Society adopts for its general government the Constitution of the Royal Geographical Society of Australasia, with the following rules for its guidance:—

TITLE.

1. The Royal Geographical Society of Australasia (South Australian Branch).

OBJECTS.

2. The objects of the Society are:—

- (a) Scientific—The advancement of Geographical Science, the study of Ethnology and Physical Geography, and the exploration of Australasia and the islands and seas adjacent thereto; and the acquirement of information as to the native races, the physical features, fauna, flora, and geological formation thereof.
- (b) Commercial—The study of Commercial Geography, the natural and artificial products, and the manufactures of various countries, with a view of promoting commerce.
- (c) Educational—The dissemination of knowledge relating to Physical, Commercial, and Political Geography, and Ethnology among all classes by means of public lectures and publications.
- (d) Historical—The collection and publication of Historical records of geographical interest and of memoirs of notable colonists connected with Australasia.
- (e) The compilation from reliable data of the Geography of Australasia.

CONSTITUTION AND RULES.

3. The means by which this is sought to be accomplished are:—

- (a) By holding meetings for lectures, for reading papers by competent authorities, and for discussion thereon.
- (b) By recognising and assisting as far as practicable the efforts of explorers.
- (c) By forming a Library and Museum containing a collection of Works of Travel, Exploration, Ethnology, and of General Geographical and Scientific Literature, and also of Maps, Charts, Plans, and objects of general interest.
- (d) By corresponding with kindred Societies, whether Colonial, or British, or Foreign, with a view to the exchange of information and publications.
- (e) By publishing, whenever practicable, a record of the Society's transactions, containing reports of the principal lectures and other information of Geographical and Ethnological interest.
- (f) By obtaining the adoption of a more uniform and systematic Orthography than has hitherto been observed in regard to the topographical names in the State.

CONSTITUTION.

4. The Society shall consist of Ordinary, Corresponding, and Honorary Members.

- (a) Any person may become an Ordinary Member, subject to election and payment of the annual subscription.
- (b) Persons of distinguished scientific attainments who have promoted the objects of the Society may be elected Corresponding Members.
- (c) Honorary Members shall be elected from among such persons as have rendered valuable service in the cause of Geographical Science.

ELECTION AND PRIVILEGES OF ORDINARY MEMBERS.

5. Every person desirous of admission as a Member of this Society shall be nominated by two Ordinary Members; the nomination (to be in Form 1 of the Appendix) to be delivered to the Secretaries in writing, and submitted to the Council at its next meeting. The Council may proceed to the election by show of hands, or by ballot if demanded.

6. Every person so elected shall, upon payment of his subscription, become a Member of this Society; and shall be presented by the Secretary with a Member's ticket and a copy of the rules.

7. The Ordinary Members of the Society have the right to be present and vote at all meetings of the Society; to introduce two visitors at the General or Ordinary Meetings upon entering their names in the Visitors' Book; but no visitor shall speak unless specially invited to do so by the Chairman. Each Member to be entitled to receive a copy of the Society's official publications, and to have access to the library and other public rooms of the Society.

8. Any Member is eligible to be an Officer or Member of the Council of this Society.

9. The names of Members elected by the Council shall be announced to the Society by the President at its next ordinary meeting.

ELECTION OF CORRESPONDING AND HONORARY MEMBERS.

10. The Corresponding and Honorary Members shall be elected by the Council under the same conditions as laid down in Rule 5 for Ordinary Members, and such election shall be announced to the Society at the next Ordinary Meeting. They shall be exempted from the payment of fees, and may exercise the privileges of Ordinary Members; except that they shall not vote at any meeting of the Council.

GOVERNMENT BY COUNCIL.

11. The Government of the Society shall be vested in a Council, consisting of a President, Vice-President, Honorary Treasurer, two Honorary Secretaries, and nine Ordinary Members of the Society, to be elected as hereinafter directed.

12. The Council shall have the management and control of the affairs, property, and funds of the Society.

PROPERTY.

13. The whole of the property and effects of the Society of what kind so ever shall be vested in three Trustees for its use, who shall be chosen at a General Meeting of the Society.

ELECTION OF PRESIDENT AND VICE-PRESIDENT.

14. The President and Vice-President shall be elected at the General Annual Meeting of the Society by show of hands (but a ballot may be demanded by not less than five members present at the meeting), and may hold office for a term not exceeding three years, subject to re-election. The President shall preside at all meetings of the Society and of the Council at which he may be present, or in his absence the Vice-President or a Member of the Council.

ELECTION OF HONORARY TREASURER AND TWO HONORARY SECRETARIES.

15. The Honorary Treasurer and two Honorary Secretaries shall be elected separately and at the General Annual Meeting of the Society by show of hands (but a ballot may be demanded by not less than five members present).

ELECTION OF ORDINARY MEMBERS TO THE COUNCIL.

16. The election of Ordinary Members of Council shall be by show of hands (but a ballot may be demanded by not less than five members present) at a General Annual Meeting of the Society, and two at least shall retire from office each year.

The two Members who have attended the least number of meetings of the Council shall so retire, but shall be eligible for re-election.

17. The President, Vice-President, or Members of the General or Administrative Council of New South Wales, of Victoria, or of Queensland, or other associated State, shall, when present in Adelaide, be admitted to the meetings of Council as Honorary Members.

DUTIES OF THE COUNCIL.

18. The Council shall have the management and control of the affairs, property, library and funds of the Society, and shall transact all such business of the Society as is not required to be transacted by the Society at its stated Meetings; and it shall have charge of and edit all publications of the Society. The Council may also secure the services of any persons for special work.

19. The Council shall meet (as nearly as practicable) once in every month at such time and place as may be appointed. A Special Meeting of the Council may be convened at any other time on the authority of the President, or, in his absence, of the Vice-President, or otherwise of any two Members of the Council. Due notice of all Council Meetings to be sent to each member.

20. The Council shall prepare an Annual Balance-sheet, a return of the attendance of its members, and a report on the operations of the Society for the preceding year, for presentation at the General Annual Meeting.

21. No business shall be transacted at any meeting of the Council unless five of its members are present; in case of equality of votes, the Chairman shall have an additional or casting-vote.

22. The Council shall have power to fill for the unexpired term any vacancy that may occur in its own body, or in any of the offices of the Society; and it shall have power to declare a vacancy in any office whenever the incumbent of such office, by reason of absence from its meetings for three consecutive months without satisfactory explanation or from other causes, is deemed incapable of performing, or unfit to perform his duties.

23. It shall be the duty of the Council to decide upon the papers to be read at the meetings of the Society and to determine as to their publication in whole or in part.

24. Any Member of Council personally interested in a question before the Council shall, if requested to do so by the President or Chairman, withdraw during its consideration.

DUTIES OF THE HONORARY TREASURER.

25. The Honorary Treasurer shall have special charge of all moneys, accounts, deeds, and securities; and shall see to the collecting of all moneys due to the Society, and shall submit quarterly to the Council a list of the names of such members as shall be in arrear with their subscriptions. He shall pay all moneys received into a bank account to the credit of the Royal Geographical Society of Australasia (South Australian Branch).

26. All accounts due by the Society shall be approved by the Council before being paid, and all payments shall be by cheque, signed by the Honorary Treasurer and by one of the Honorary Secretaries.

27. The Honorary Treasurer shall, prior to the Annual Meeting of the Society prepare and submit to the Council an Annual Statement of Receipts and Disbursements; to be audited by Auditors appointed at the preceding Annual Meeting.

DUTIES OF THE HONORARY SECRETARIES.

28. An Honorary Secretary shall attend and take minutes of the proceedings of the Society and of the Council respectively, and see that all such minutes are entered in the several minute-books. The Honorary Secretaries shall keep a complete list of the Members of the Society, with the name and address of each accurately set forth; they shall conduct all correspondence and transact all the routine business, and shall have charge of all the property, books, maps, papers, &c., and shall see that the same are properly recorded and catalogued.

FEES.

29. The subscription fee of Ordinary Members shall be half a guinea per annum payable in advance, such subscription payable on or before April 1 in each year.

30. A Member may at any time compound for future annual contributions by payment of the sum of £5/5.

31. Members elected during the second half of the session shall pay half the usual fee for that year. No member shall be responsible for any expenditure beyond his annual subscription.

32. Any Annual Subscriber who has not paid the year's contribution during the currency of the year shall be liable to have his name removed by the Council from the list of Members of the Society: Provided always that written application for the same shall first have been made by or on behalf of the Treasurer: And provided, also, that the Council shall have power to restore the defaulter's name at his request, and after payment of arrears.

SESSION.

(Article 13 of Constitution).

33. Session shall commence on the 1st of April and last eight calendar months.

MEETINGS.

34. The meetings of the Society shall be:—

- A. General Annual Meeting.
- B. Ordinary General Meeting.
- C. Special General Meeting.

35. The General Annual Meeting shall be held in the month of May, on a day to be fixed by the Council, to receive the President's address on the state of the Society, and to discuss such subjects as may be brought forward relative to its affairs and operations; and to make the elections for the ensuing year. If, after a lapse of fifteen minutes after the time fixed for the meeting, less than Ten Members are present, it shall not be lawful for the meeting to proceed to business, except for the purpose of adjournment, and the meeting shall stand adjourned until a day and time then resolved upon.

36. The Ordinary Meeting of the Society shall be held on such days as the Council may appoint.

37. No paper shall be read at any meeting which has not been notified to and approved by the Council; and every paper read before the Society shall be the property thereof, and immediately after it has been read shall be delivered to one of the Secretaries.

38. A Special General Meeting shall be called by the Council when considered necessary, or when required by the requisition in writing of any five Members, the requisition to specify (in the form of a resolution) the purpose for which the meeting is required to be called; and at the meeting the discussion shall be confined to the subjects mentioned in the notice convening such meeting. Ten Members to form a quorum.

39. All meetings of the Society shall be convened by notice, written or printed, sent by the Secretaries to every Member resident in the State at least seven days before date fixed for meeting. The circular shall state, as far as convenient, the subjects to be brought before the meeting.

40. The President, or, in his absence, the Vice-President, shall take the chair at all meetings of the Society; or, in event of his absence, Members present shall elect a Chairman, being a Member of Council, if such be present.

INTER-STATE MEETINGS.

41. The Council may appoint a Member, or Members, to attend Inter-State General Meetings when deemed necessary.

RETIREMENT OF MEMBERS.

42. Any Member may, on payment of all arrears of his annual contribution, withdraw from the Society by signifying his wish to do so by letter under his own hand, addressed to one of the Secretaries. Such Member shall, however, be liable to the contribution of the year in which he signifies his wish to withdraw, and shall also continue liable for the annual contribution until he shall have returned all books or other property borrowed by him of the Society; or shall have made full compensation for the same if lost or not forthcoming. Should there appear cause in the opinion of the Council to require the retirement from the Society of any Member a Special General Meeting shall be called by the Council for that purpose; and if three-fourths of those voting agree by ballot that such Member shall retire,

the Chairman shall declare the same accordingly; whereupon the name of such person shall be erased from the list of Members.

ARCHIVES.

43. The Archives of this Society shall be kept in Adelaide.

ANNUAL REPORT.

44. An Annual Report of this Society shall be published.

ALTERATIONS OF RULES.

45. No alteration of rules shall be made except at a special General Meeting convened for the purpose, of which due notice shall be given.

BY-LAWS.

46. The Council shall have power to make By-laws for the conduct of its business and the business of the Society generally: Provided no such By-laws shall be repugnant to the objects of the Society or to any rules made by the Society at any of its General Meetings.

BY-LAWS RELATING TO COMMUNICATIONS TO THE SOCIETY.

1. Every paper which it is proposed to communicate to the Society shall be forwarded to one of the Honorary Secretaries, for the approval of the Council.

2. The Council may permit a paper written by a non-member to be read, if communicated through a Member.

3. In the absence of the authors, papers may be read by any Member of the Society appointed by the Chairman or nominated by the author.

4. No paper or communication read before the Society shall be published without the consent of the Council.

5. The Council shall decide, not later than at its meeting next following the reading of a paper, whether it shall be printed in the proceedings; and if not, such paper may be returned, if desired, to the author.

6. All communications intended for publication by the Society shall be clearly and legibly written on one side of the paper only, with proper references, and in all respects in fit condition for being at once placed in the printer's hands.

7. In order to ensure a correct report, the Council request that the paper shall be accompanied by a short abstract for newspaper for revision.

8. The author of any paper which the Council has decided to publish will be presented with twenty copies; and he shall be permitted to have extra copies printed on making application to the Honorary Secretaries, and on paying the cost of such copies.

9. A proof corrected from the MS. shall be submitted to the author for revision .

APPENDIX.

FORM No. 1.

The Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

CERTIFICATE OF A CANDIDATE FOR ELECTION.

Name

Qualification or Occupation

Address

being desirous of admission into the South Australian Branch of the ROYAL GEOGRAPHICAL SOCIETY OF AUSTRALASIA, we, the undersigned members of the Society, propose and recommend him as a proper person to become a member thereof.

Dated this day of 190 .

Form of Legacy.



I HEREBY BEQUEATH to the ROYAL GEOGRAPHICAL SOCIETY OF AUSTRALASIA (South Australian Branch), the sum of

.....
to be devoted to the objects of the Society ; and the receipt of the Honorary Treasurer of the said Society shall be a sufficient discharge for same.

PROCEEDINGS
OF THE
Royal Geographical Society
of Australasia

(SOUTH AUSTRALIAN BRANCH).

FIFTEENTH SESSION, 1901-2.

Council Meetings.

June 27, 1901.

Present—Six.

A letter was received from the Hon. the Commissioner of Crown Lands, forwarding, at the request of Mr. W. T. Mortlock, M.P., specimens of mineral deposit of stalagmite formation which he had taken from Coffins Bay. To be acknowledged with the thanks of the Council.

President reported that a telegram of condolence had been sent to Sir John Forrest, K.C.M.G., on the death of his brother, Mr. Alexr. Forrest, C.M.G., and a reply from Sir John was read thanking the Council and members.

August 27, 1901.

Present—Seven.

The following interesting letter was read from Mr. E. J. Eyre, in reply to a letter written to him by the President, through a suggestion made in the last annual report, and it was directed to be recorded in the minutes:

Walraddon Manor,
Tavistock, Devon.

Dear Mr. Kyffin Thomas.

Your very kind and friendly letter of the 8th of June, 1901, reached me this morning. Pray convey to the members of the South Australian Branch of the Royal Geographical

Society of Australasia, and accept yourself my grateful thanks for the very flattering manner in which the Council under your Presidency has recorded its appreciation of my services in the early and struggling days of South Australia. It is always gratifying to know that one's labors gain the approval of those in whose interests they were undertaken, and doubly so when, after the lapse of half a century, a succeeding generation kindly confirms the opinion of their predecessors. This pleasure is greatly enhanced when near the close of a long life I am permitted to know that the colony in which during its infancy I toiled, but also spent many happy years, has since developed into a magnificent and prosperous State, constituting an important and valued part of the glorious and world-wide British Empire.

Believe me, dear Mr. Kyffin Thomas,

Very sincerely yours.

EDWD. JOHN EYRE.

Mr. R. Kyffin Thomas,

President of the South Australian Branch of the
Royal Geographical Society of Australasia.

A letter was read from the Royal Geographical Society, London, acknowledging the receipt of a copy of Mr. Chas. Hope Harris's letter relating to the South Magnetic Pole, and stating that it had been handed to the scientific member of the British Antarctic Expedition.

It was resolved to forward copies of Mr. Harris's letter to the other Antarctic Expeditions.

Mr. W. H. Tietkens presented a photograph of the late Hon. D. Carnegie. To be acknowledged with thanks.

October 3, 1901.

Present—Six.

A letter was received from the executors of the late Baron Von Mueller, intimating that the monument erected to the memory of the deceased scientist would be unveiled in November next, and inviting the Council to take part in the ceremony.

To be acknowledged with thanks, and the Secretary to state that the Council would (if possible) be glad to be represented.

Secretary reported that the Superintendent of Public Buildings suggested the coating of the surface of Frenchman's Rock (Kangaroo Island) with a transparent composition as a preventive against any further progress of decay.

October 10, 1901.

Present—Eight.

Only formal business was transacted.

December 5, 1901.

Present—Nine.

Secretary reported the receipt of a letter from the Surveyor-General, Perth, forwarding a proof of Mr. L. A. Wells's Calvert Expedition Journal for revision by Mr. Wells, and that it had been revised and returned to be printed.

President reported that he had written Sir S. J. Way, Bart., President of the Public Library Board, with reference to the affiliation of this Society with the Public Library. Letter read, and also a reply from Sir Samuel, stating that he was strongly in favor of the proposal to affiliate.

Secretary reported that Sir Langdon Bonython had represented the Society at the unveiling of the memorial erected to the late Baron Mueller.

President reported that he, with Mr. Newland, Hon. J. L. Parsons, and Mr. Reed, and the representatives of the Old Colonists' Association and Australian Natives' Association, appointed to take steps to secure records of the early history of this State, had held a meeting, and decided to send out circulars requesting their assistance to each of the members on the list of Old Colonists (obtained at the time of the Duke of Cornwall's visit) and to any others. And, further, that the members of the committee be requested to furnish the names of any other persons to whom the circular should be sent, and enlist the assistance of the officers of their Associations.

President reported the death of Mr. E. J. Eyre, the explorer, and read a further letter he had recently received from him, in which he had enclosed two of his photographs. One of these the President presented to the Society.

It was resolved that a letter of sympathy be sent to the widow of the late explorer.

It was also decided to obtain a copy of the photograph of Mr. Eyre for each member of the Council, and a member of the Council subscribed towards the cost.

The President introduced Messrs. R. T. Maurice and W. R. Murray, and congratulated them on the successful work they had accomplished on their recent expedition.

Mr. Maurice thanked the Council, and presented to the Society the daily journal and abstract of journal of his expedition, the lists of rock samples, and natural history specimens which he had secured, and also some interesting photographs taken by him.

Mr. Murray showed a map of the route of the expedition.

Resolved that the Government be requested to print the journals and maps of Mr. Maurice's expedition, and that they be thanked for lending the services of Mr. Murray as surveyor. Carried.

Resolved that a vote of thanks be given to Mr. Maurice for his generous and valuable services to the State and to geographical science for his gift to the Society of his journals and records, and that a letter be written accordingly.

Resolved that Mr. Maurice be an honorary member of the Society.

January 28, 1902.

Present—Ten.

A letter was read from Mr. R. T. Maurice, thanking the Council for electing him an honorary member.

The President reported that he and Mr. Newland had arranged with the Superintendent of Public Buildings to have a gun metal plate inscribed and inserted in a rock on the Bluff (Victor Harbor) for the memorial to Captain Flinders, and also that arrangements were in negotiation with the Government with respect to their payment of half the cost, the total of which would be about £25.

Secretary reported that the Government had printed an abstract of the report of the Maurice Expedition explorations.

Mr. Magarey referred to the proposal mentioned at the last annual meeting to place a memorial on the obelisk at Mount Lofty in commemoration of the naming of that mount by Flinders, and stated that it was proposed to have a stone inserted; and that a ceremony should be held to unveil it on March 23 next, the centenary of the event. Moreover, that the cost had been met by private subscription.

Resolved that Council approve of the proposal.

Mr. T. W. Green presented some old and interesting photographs of Northern Territory natives. To be thanked.

It was decided to recommend favorable consideration of the Government to a request that the journal and maps of

Davidson Explorations in the Northern Territory be printed as usual, and also that some remuneration should be made to Mr. Davidson.

The President announced his departure for England shortly. The Council granted leave of absence till the end of the year.

Mr. Newland was appointed Acting President.

February 6, 1902.

Present—Eleven.

The meeting was called for the purpose of meeting Dr. W. E. Roth, Protector of Aborigines for Queensland.

The President welcomed Dr. Roth, who replied, expressing his pleasure at the action of the Society, which had been the first scientific Society to give a recognition of his work. Dr. Roth gave a very interesting and instructive account of his work among the natives, and of the legislation which had been effected to assist him in his labors.

During the meeting Dr. Roth's book on ethnological studies among the North-Western Queensland tribes, some bulletins issued by him, and two Acts which had been passed by the Queensland Parliament, dealing with the treatment of the natives, were laid before the Council.

Resolved that a hearty vote of thanks be accorded to Dr. Roth for his work among the aborigines in Queensland, and for his kindness in attending this afternoon and giving the information he had done.

Dr. Roth replied, and thanked the Council.

February 28, 1902.

Present—Ten.

A letter was read from Mr. C. Sabine, forwarding a map of Warrow Station, near Fowler's Bay, made by Mr. J. McDouall Stuart in 1848, and the top of a fieldglass or telescope dropped by E. J. Eyre, the explorer, between Fowler's Bay and Eucla, which was picked up by Ernest Giles, the explorer. Mr. Sabine to be thanked.

Mr. C. Winnecke forwarded a group of photographs of the members of the Horn Expedition and scenes of the country passed through. Resolved that Mr. Winnecke be thanked for his gift, and that the same be framed.

The Chairman reported that Mr. R. T. Maurice had given a second illustrated lecture before the Society on his travels on Monday last, the 24th ult., which was well attended, and that Mr. Maurice had defrayed the cost of this as well as his previous lecture.

Resolved that the thanks of the Society be given to Mr. Maurice for his generous action.

Mr. Magarey mentioned that His Excellency the Governor had consented to unveil the Flinders Memorial Tablet at Mount Lofty, and name the column there "Flinders Column." And that the Lieutenant-Governor the Right Hon. S. J. Way, Bart., had consented to move a vote of thanks to His Excellency. Also that Mr. J. Leahy had provided the stone. Mr. Magarey also read the inscription on the tablet, which is as follows: "Flinders Column—In honor of Matthew Flinders, commander of the 'Investigator,' who, from Kangaroo Head, Kangaroo Island, discovered and named Mount Lofty on Tuesday, March 23, 1802." The Flinders Column named by His Excellency, Lord Tennyson, the Governor of South Australia, Saturday, the 22nd March, 1902.

A letter was read from the Hon. Chief Secretary, stating that the Government would contribute one-half of the cost (£10) of the gun metal inscription plate to be fixed at the Bluff in commemoration of Flinders. The inscription is as follows: "In commemoration of the meeting near this Bluff between the 'Investigator' (Matthew Flinders), who explored the coast of South Australia, and M.F. 'Le Geographe' (Nicolas Baudin), April 8, 1802. On board the "Investigator" was John Franklin, the Arctic discoverer. These English and French explorers held friendly conference, and Flinders named the place Encounter Bay." Unveiled by His Excellency, Lord Tennyson, April 8, 1902.

Messrs. R. T. Maurice and W. R. Murray attended (by request), that the Council might bid them farewell prior to their starting on another expedition into the interior of Australia. The Acting President spoke of the high appreciation which was felt of their previous work, and wished them success and a safe return. Mr. Maurice thanked the Council, and briefly stated the work they hoped to accomplish, and that they hoped to go from Flinders Bay across the continent to Cambridge Gulf. Mr. Murray also thanked the Council.

March 24, 1902.

Present—Six.

The President reported that the unveiling of the Flinders Memorial Tablet and naming of the Flinders Column at Mount Lofty on Saturday last was successfully performed by His Excellency the Governor.

It was resolved that the hearty thanks of the Council be given to Mrs. J. W. Bakewell for her kindness in entertaining the Council and their friends at the close of the ceremony.

Dr. H. Marten presented two photographs of the grave of Charles Sturt, the explorer. To be thanked.

A draft of the new rules was submitted, and consideration was deferred until the next meeting.

April 22, 1902.

Present—Eight.

The Acting President reported that the ceremony of unveiling the tablet in memory of Captain Flinders at the Bluff, Encounter Bay, by His Excellency the Governor, had been successfully carried out on April 8.

It was resolved to request the Government to provide some protection to the Flinders Column and Tablet at Mount Lofty, and the tablet at Encounter Bay against defacement and injury by the public.

The Hon. Treasurer presented a copy of reports from Captain Crozier, Thomas Lipson (naval officer and harbor master), and Captain John Hart, with an accompanying map of Victor Harbor, which the Government had printed.

May 19, 1902.

Present—Eight.

Resolved that a letter be sent to Professor Baldwin Spencer and Mr. F. J. Gillen, congratulating them on the successful accomplishment of their expedition through Australia, and reminding them of their promise for a paper.

The Surveyor-General, Perth, wrote forwarding 200 copies of Mr. L. A. Wells's Journal of the Calvert Exploring Expedition. To be acknowledged with thanks.

ATTENDANCE ROLL.

SESSION 1901-2.

COUNCIL MEETINGS HELD, 11.

R. K. Thomas, J.P.	...	...	...	...	...	...	7
Sir Langdon Bonython, J.P.	...	...	...	...	...	...	1
S. Newland, J.P.	...	...	...	...	...	...	11
W. P. Auld	...	...	...	...	...	...	6
W. B. Wilkinson, J.P....	...	...	...	...	...	...	5
C. L. Whitham	...	...	...	...	...	...	7
W. H. Phillipps	...	...	...	...	...	...	3
J. Angas Johnson, J.P.	...	...	...	...	...	...	2
A. W. Dobbie, J.P.	...	...	...	...	...	...	7
Rev. Dr. Eitel, M.A., Ph.D.	...	...	...	...	...	...	9
A. T. Magarey	...	...	...	...	...	...	3
C. H. Harris	...	...	...	...	...	...	2
T. Gill, J.P.	...	...	...	...	...	...	8
Hon. J. Langdon Parsons, M.L.C.	...	...	...	...	...	...	7
E. H. Newman, LL.B.	...	...	...	...	...	...	11

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

A Special Meeting for a proposed alteration of rules was held on Monday afternoon, May 26, 1902, in the Society's Rooms, Pirie-street. The chair was taken by Simpson Newland, Esq., J.P., Acting President.

SPECIAL MEETING.

The Acting President moved the adoption of the new constitution and rules which had been prepared pursuant to the resolution therefor carried at the last Special Meeting, with the amendment of the title to the Royal Geographical Society of Australasia, South Australian Branch.

Hon. J. L. Parsons seconded.

Carried.

ANNUAL MEETING.

The annual meeting of this Society was held on Monday afternoon, May 26, 1902, in the Society's Rooms, 3, State Bank Chambers, Pirie-street. The chair was taken by Simpson Newland, Esq., J.P., Acting President.

The minutes of the last Annual Meeting were read and confirmed.

Mr. T. Gill, Hon. Treasurer, presented the balance-sheet, which showed that the total receipts for 1901-2 were £165 19/5, and the expenses £152/6/10, leaving a credit balance to current account of £13/12/7. The assets of the Society were valued at £2,776/17/7.

The Acting President, Simpson Newland, Esq., J.P., then delivered his address as follows:

Since the last report, dated May 31, 1901, your Council has held seven meetings, and during that period nine new members have been added to the Society—Messrs. F. Doswell, W. B. Poole, F. E. Benda, Hon. L. O'Loughlin, M.P., Hon. R.

W. Foster, M.P., E. H. Limbert, J. W. Welch, Brigadier-General Gordon, and also one honorary member, Mr. R. T. Maurice.

The Society has to regret the loss by death of two of its members, Mr. Matthew Goode and Mr. Philip Tod, who had always been warmly interested in its progress. We have also to lament the death of Sir John Colton, K.C.M.G., one of our founders and a truly valuable colonist, whose name will be ever remembered in the history of this State. Besides this, we have just sustained a great loss in the death of Mr. J. Angas Johnson, who had ever manifested a deep interest in this Society financially and otherwise.

E. J. EYRE.

Since our last Annual Meeting the old Australian pioneer and intrepid explorer, Edward John Eyre, has passed away at a ripe old age. He is chiefly remembered in South Australia for his remarkable and tragic journey along the coast from this colony to Western Australia in 1841. Among colonists of the very early days his memory is still cherished as that of a fearless and splendid character, who went straight to his object.

ALEXANDER FORREST.

The death of Alexander Forrest, C.M.G., F.R.G.S., during the past session has still more decreased the small band of our surviving heroic explorers. In 1874, with his brother, Sir John Forrest, K.C.M.G., he penetrated through the dry, unknown interior from Western Australia to this colony; and during 1879 he traversed the north-west point of Western Australia to Port Darwin, making many discoveries.

Papers have been read before the Society during the last session at the Stow Lecture Hall, viz., on July 4, by Hon. J. Langdon Parsons, M.L.C., on the "Pastoral and Mineral Resources of the Northern Territory," and on the same date by M. J. Holtze, Esq., F.L.S., F.R.G.S., London, on the capabilities of the Northern Territory for tropical agriculture. On December 16 by R. T. Maurice, Esq., on his recent explorations from Fowler's Bay to the Rawlinson Ranges, and on the same date by C. Winnecke, Esq., F.R.G.S., on Davidson's West Central Australia Exploration. A further lecture by R. T. Maurice, Esq., on his recent explorations was read before the Society on February 24 last.

LIBRARY AND MUSEUM.

Twenty-six volumes have been added to the Library during the last session, in addition to many valuable volumes of the Proceedings of various Scientific Societies, and also several acceptable presentations to the Museum, the receipt of which the Society would acknowledge to the various donors, and particulars of which are found in the appendix.

My Council will gladly welcome at any time special donations to our Library, as there are still many books on colonial biography and historical literature that should find a place on our shelves.

BARON VON MUELLER MEMORIAL.

A letter was received in October last from the executors of the late Baron Von Mueller, intimating that the monument erected to the memory of the deceased scientist would be unveiled in the month of November, and inviting the Council to take part in the ceremony. I feel gratified in stating that our Vice-President, Sir Langdon Bonython, was able to be present, and delivered an address.

EXPLORATION.

The last century may in a special sense be characterised as one of discovery and exploration. It is stated by Nansen in a recent article that more than half the entire land area of the globe was completely unknown at the beginning of the century, while at its close scarcely a tenth part remained to be explored. It may be of general interest to the members of our Society to take a brief survey of the progressive steps which have been taken in this direction in our own State.

The century began by the discoveries of Lieutenant Grant, who left England in the "Lady Nelson" in January, 1800, and caught sight of the first land, named Cape Northumberland, on December 3, after a voyage of eleven months, followed by his discovery of the two extinct volcanoes named Mount Schank and Mount Gambier.

Next in order followed Captain Matthew Flinders, who sailed from Spithead in the "Investigator" in July, 1801, landing at King George's Sound in less than five months, viz., early in December. Subsequently to this he discovered the various bays in the Australian Bight, Port Lincoln, Kangaroo Island, Spencer's and Vincent's Gulfs, Mount Lofty, and Encounter Bay. After visiting Sydney he proceeded northwards and discovered Sir Edward Pellew's Group, Arnheim Land, &c., &c.

Nor must we omit the discoveries of Baudin's Expedition, one vessel of which was met in Encounter Bay by Flinders. That expedition proceeded along the coast on the north and west sides of Australia, and also found a new opening into Shark's Bay, which they called the Geographe Channel; and the passage into the bay between Dirk Hartog's and Dorre Island, which was named the Naturaliste Channel. They then discovered a large inlet lying parallel to the coast, which they called Port Leschenault; also a further bay named Geographe Bay, and the extreme westerly point, Cape Naturaliste.

Then followed the discoveries in New South Wales by Blaxhead and Lawson, Wentworth and Evans in 1814, and subsequently the various explorations with which we are so familiar in their published works of Oxley and King, of Mitchell and Sir George Grey, of Edward John Eyre, Leichardt, and Sturt, of Gregory, John McDouall Stuart, Burke and Wills. Landsborough and McKinlay, and then followed Ernest Giles, Gosse, Forrest, Warburton, Tietkens, Winnecke, the Elder Exploration, and the Hon. D. Carnegie.

Taking a wider outlook, but without venturing into the field of detail, the whole century has disclosed to us in volumes of travel innumerable, a marvellous record, not only of explorations into unknown areas, but also of close investigations of the interior of known countries, opening out to us not only their geographical conditions, but the wondrous mysteries of their living occupants in the varied races and tribes of the human family, telling us of their general characteristics, customs, and religious and superstitious beliefs.

And the desire for geographical knowledge has evidently kept pace with the extension of geographical discovery, as there is now in 83 Geographical Societies a membership of 50,000, and an issue of 153 geographical journals.

But this short review of the exploratory work of the past century would be altogether incomplete without special mention of those subtle and marvellous revelations that have been made in a science of close kinship to our own, the science of oceanography.

It is now just thirty years since a band of scientists sailed in the "Challenger" from Sheerness, and which in four years explored the ocean depths from the Arctic seas to our southern sphere in the Antarctic regions. In that expedition were discovered stupendous mountain ranges and volcanoes with awful precipices and declivities.

In her dredging the "Challenger" brought up to our ken

from the primeval ooze, it was said, the accumulations of a million centuries, a vast assemblage of ocean denizens, animal and vegetable, hitherto unknown. The ooze itself as a rule oscillated about the freezing point, even in the hot equatorial regions where it was brought up in quantities to cool the ship's drinking water.

It was then discovered by soundings that the distance from the top of the highest mountain to the bottom of the deepest sea is over ten miles, soundings also that frequently gave a depth of more than five geographical miles.

The Challenger Expedition was, in fact, the discovery of a new science, a science of such magnitude that the collections of those four years have occupied Sir Wyville Thompson and Sir John Murray and fellow-workers nearly twenty years in microscopic investigations, in preparing and arranging objects almost innumerable, and in compiling the whole, which was published in 1895 in fifty large quarto volumes.

POLAR EXPEDITIONS.

In the face of all other discoveries these two areas, north and south, stand out in full prominence as having evoked an unparalleled element of persistent energy and determination in the constant and repeated attempts to penetrate their hitherto unknown precincts.

Three Arctic expeditions at least are now in progress. One (a Swedish) by Captain Otto Sverdrup, who left in the "Fram" in October, 1898. A Russian expedition also, under Baron Von Toll, left Europe in 1900; besides an American expedition, which has recently set out in two ships fitted out by an American millionaire, and under the leadership of Mr. Baldwin, who was associated with Peary in his expedition to North Greenland. In each of these expeditions it has been determined, when apparently blocked by ice, to establish depots, and then to push onwards towards the North Pole over the ice with dogs and sledges, thus enabling them, if practicable, to return to their depot and winter quarters.

ANTARCTIC EXPLORATION.

The limited information we possess of the southern areas from the few expeditions that have been dispatched in that direction have awakened a world-wide interest, and no less than four expeditions are now on their way to the South Polar seas. The English expedition in the "Discovery," under Cap-

tain Scott; the German, under the command of Professor Drygalski; the Norwegian, under Professor Otto Nordanskjoeld, in the "Antarctica;" and the Scotch, under Mr. William Bruce. Each expedition will pursue its own independent observations at certain places agreed upon and different points; but all acting in perfect harmony together and in accordance with a settled plan in order to determine by the results of each exploration the great unrevealed and unmapped Southern area.

CENTRAL AUSTRALIA.

Allusion was made in last year's address to two expeditions then organised—one by Professor Baldwin Spencer and Mr. F. J. Gillen, S.M.; and another by Mr. R. T. Maurice, who took with him Mr. W. R. Murray, surveyor of our Mines Department.

SPENCER AND GILLEN.

Professor Baldwin Spencer, M.A., F.R.S., of Melbourne University, and Honorary Fellow of Authors' Institute, and Mr. Gillen, who left Adelaide on March 15 of last year, practically commenced their journey at Oodnadatta, the main object being to make a thorough investigation into the habits, customs, language, ceremonies, and superstitious beliefs of the various aboriginal tribes of Central Australia. They had the advantages of excellent photographic appliances, in addition to a valuable phonograph presented to them by Mr. J. Angas Johnson. They first traversed the country at the southern end of Lake Eyre, a little below the sea level; they then went on to Charlotte Waters. They then visited the Finke River, and the Oraminna, MacDonnell Ranges, and Alice Springs, arriving there at the end of April, and where they were singularly fortunate in the occurrence of corroborees, dances, and strange and weird ceremonies, including sacred ceremonials almost every day and night for some time after their arrival, one special feature being a war dance performed by sixty male natives. From these and other native ceremonies, excellent phonographic and cinematographic records have been obtained, which, it is hoped, will be exhibited at future meetings of our Society. At Alice Springs they witnessed the commencement of one corroboree which lasted night after night for nearly a fortnight, besides other corroborees and various characteristic dances of the wildest character, the description of which in their published work, and the sight of which in the animated pictures, we shall look forward to with great

interest. From the MacDonnell Ranges they proceeded north to the western shores of the Gulf of Carpentaria, visiting and working amongst the various tribes en route. Ethnologically, this expedition was a marked success, as their work embraces the knowledge of eighteen tribes.

R. T. MAURICE.

Mr. R. T. Maurice, together with Mr. W. R. Murray, a cook, a half-caste cameldriver and his lubra, started from Fowler's Bay early in May for Ooldea and on to Paling Rockhole; then north-east to Paraminna Dam, and thence westerly between the tracks of Giles and the Elder Exploration to Wells' Rockhole. From this point they went to the Cavenagh, Rawlinson, Mann, and Tomkinson, Musgrave, and Everard Ranges, and then onward to Oolarinna Spring back to Paraminna Dam, where they picked up their old tracks, returning to Fowler's Bay in September. The journal of the above is now in the possession of the Society.

The special object of this journey was to fix accurately the permanent native waters, and to discover a track from Fowler's Bay to the Rawlinson Ranges, in which object the explorers were entirely successful. Mr. Maurice, on his return to Adelaide, was accompanied by two wild natives, one being from the Everard Ranges, the other from the Musgrave Ranges.

LAKE EYRE BASIN.

A further expedition for scientific purposes was undertaken last year by Professor Gregory, of Melbourne, in order to obtain further geological information with respect to Lake Eyre Basin, and also with a view of securing specimens of the fossils of that area for the Melbourne University Museum. The results of that expedition, as recorded in detail by Professor Gregory, were full of interest as regards the geological changes which have occurred in the basin itself, which, once encroached upon by the sea, has since sunk to 39 feet below sea level; and also, firstly, the discovery of the bones of many animals now extinct; and, secondly, of the bones of the dingo, in strata in which no trace whatever was found of man or any of his implements, tending to show that the dingo existed prior to the appearance of any of the aboriginal tribes. It is understood that Professor Gregory is preparing for publication a report of his journey to the east of Lake Eyre.

ANDREE'S EXPLORATION.

In the report of June 8, 1900, I read an extract from the bulletin of the Paris Geographical Society referring to a buoy belonging to Andree's balloon that had been discovered by a seal hunter near East Spitzberg, leaving, however, the fate of the party still in uncertainty. Shortly after this a search party was sent out to discover, if possible, traces of the whereabouts of Mons. Andree, and has returned, reporting that some Esquimaux said they had seen a large boat floating in the air, and when it settled on the ground, saw three white men step from it, that they fired at them, killed all three, and then took possession of their property. This unhappy result of the expedition is apparently confirmed by a report from the Manitoba Hudson Company's northern factory at Churchill, viz., that a savage tribe of Esquimaux had shot three white men, who, they said, came through the air in a large kayak or boat. I hope this will prove incorrect, and that even yet the intrepid explorer may return in safety.

RECORDS OF EARLY HISTORY.

At the last annual meeting of the Society the President, on behalf of your Council, called attention to the desirableness of making an effort to obtain from some of the pioneers of the State, who are now rapidly passing away, valuable records and impressions in reference to the early history of South Australia. It was proposed to ask the co-operation of the Old Colonists' and the Australian Natives' Associations in carrying out this object. In accordance with this proposal, which was adopted by your Society, a meeting was held on November 4, at which this Society and the two Associations named were represented. It was decided that a letter, to be signed by your President as Chairman be sent to the persons on the list of the Old Colonists (obtained at the time of the Royal visit last year), and to other pioneers, and that the members of the Joint Committee be requested to furnish the names of other persons to whom, in their opinion, circulars should be sent, and that the co-operation of the officers of the various Societies should be enlisted.

Several hundred copies of the circular agreed to have been sent, and the response has been most gratifying. Old diaries, papers, recollections, as well as pictures and objects of historical interest, have been received from many sources. It is an interesting coincidence that Mr. E. B. Scott, now living at Currency Creek, has presented the Society with the original

list of the surplus articles buried at Fowler's Bay on February 25, 1841, previous to Eyre's departure from that place on his memorable journey to the west; and that Mr. George Foreman has given a candle which he unearthed from the same spot in 1862. Your Society hopes to publish, from time to time, extracts from the valuable documents in their possession.

FLINDERS CENTENARY.

Four ceremonies, each of them in connection with the discoveries of Captain Matthew Flinders, have just been commemorated.

The first was celebrated by the officers of H.M.S. flagship "Royal Arthur" and the inhabitants of Port Lincoln on February 21, with much enthusiasm at Stamford Hill, where the Franklin monument to Flinders was erected by Lady Franklin, who visited the site in 1841, under instructions from her husband, the great Arctic explorer, then Governor of Van Diemen's Land.

The second was commemorated on Kangaroo Island on March 22, 1902, by the erection of an obelisk on Kangaroo Head, where Flinders first landed.

The third celebration was held on the summit of Mount Lofty, March 22, 1902, when the tablet set in the column then named the "Flinders Column" was unveiled by His Excellency the Governor.

The last of the series was concluded on the Bluff at Encounter Bay on April 8, 1902, in the presence of many of the oldest inhabitants of the district, when His Excellency, Lord Tennyson, uncovered a tablet set in a granite rock to the honor of the great navigator.

A full account of these ceremonials will appear in our next annual volume of proceedings, which renders it unnecessary for me to enter into these matters at greater length.

Mr. C. H. Goode, in moving the adoption of the report and balance-sheet, said he was reminded that many old friends were passing away, and he was glad to see that notices of their death had been placed on the records of the Society.

Mr. E. H. Bakewell seconded the motion. The Council were to be congratulated upon the important work they had done during the year. He expressed pleasure at the careful record that had been kept of matters of public interest, and thought that the labor thus spent might lead to even better work in the future. He wished the income of the Society was larger to enable more to be done for the benefit of the

public, and thought that if more of the wealthy people of Adelaide were connected with the Society the extra assistance required would soon be forthcoming.

The motion was carried.

It was mentioned that a lady, who did not wish her name to be mentioned, had presented the Society with a lock of the hair of the late John McDouall Stuart.

The election of officers resulted as follows: President, Mr. R. Kyffin Thomas; Vice-President, Representative Sir Langdon Bonython; Hon. Treasurer, Mr. T. Gill; Hon. Secretaries, the Hon. J. L. Parsons, M.L.C., and Mr. E. H. Newman; Council, Messrs. S. Newland, A. W. Dobbie, W. P. Auld, C. L. Whitham, A. T. Magarey, W. H. Phillipps, W. B. Wilkinson, and A. M. Simpson, the Rev. Dr. Eitel, and Mr. C. H. Harris (hon. member).

Messrs. L. H. Sholl and F. W. Giles were re-elected Auditors.

On the motion of Mr. J. G. O. Tepper a vote of thanks was accorded the officers of last session for the valuable services they had rendered.

PAPERS

READ BEFORE THE

Royal Geographical Society
of Australasia.

FIFTEENTH SESSION, 1901-2.

SOUTH AUSTRALIAN BRANCH.

Davidson's West Central Australia Exploration.

By C. WINNECKE, F.R.G.S., F.R.A.S.

On Monday evening, December 16, 1901, the Royal Geographical Society held a very successful meeting in the Stow Church Lecture Hall, which was well filled. Two interesting papers by Mr. C. Winnecke, F.R.G.S. and F.R.A.S., on "Davidson's West Central Australia Exploration," and by Mr. R. T. Maurice on "Notes of Journey from Fowler's Bay to Rawlinson's Ranges," were read. Mr. R. Kyffin Thomas, the President of the Society, occupied the chair.

The Chairman, in introducing the first paper, which he read himself, said that Mr. Davidson represented a London syndicate interested in mining. He made observations which were particularly interesting, being correct topographically, and he enlightened them on matters of which they had not previous knowledge. Mr. Davidson was at present on the west coast of Africa. * He knew those present would join with the Geographical Society in the hope that the Government would print the journal and lithograph the plans of the trip.

MR. DAVIDSON'S EXPEDITION.

This expedition was conducted during a period of three years from 1898 to 1901, Mr. Davidson in his prefatory remarks says: "The exploration and development of Central Australia is a history of hardships and disappointments, and our experience, covering three of the driest years ever recorded in that country, was no exception. The present inaccessible nature of the country and the costly transports prohibit the development of gold mines other than those of a high grade. Two years were occupied in proving the country east of the transcontinental telegraph line between Barrow's Creek telegraph station and as far north as Tennant's Creek telegraph station, a block containing over 11,000 square miles. Comparatively speaking, only a small proportion of it was occupied by metalliferous country, and the belts representing this area were with one exception very small. Throughout these belts we discovered a number of goldbearing reefs, and a considerable amount of capital was sunk in development work. The reefs, however,

proved to be of such a low grade that it was considered it would not justify my employers in raising the necessary funds to thoroughly develop them. With the extension of the railway from Oodnadatta to Port Darwin these conditions will be modified, and the mineral resources of the interior would then become the great factor in the development of Central Australia." Nearly the whole of this large block, 11,000 square miles, is occupied by the massive Murchison and Davenport Ranges, parts of which are of considerable elevation. The ranges contain numberless splendid gorges, large waterholes, and several permanent water springs, &c. Mr. Davidson discovered many goldbearing areas in these ranges, besides those mentioned by Mr. H. Y. L. Brown, and he thought it worth while to specially test and describe five of the principal belts as well as to furnish a detailed sketch of these places, locating the various gold reefs, copper, and other mineral deposits. There are, of course, many more auriferous areas in this locality, but Mr. Davidson had no means or time to test them. In one place, however, he discovered opals, and in several localities alluvial gold was obtained. The principal goldbearing belts are called the North Coorundee, South Coorundee, Munadgee, Coondinga, and Skinner. Mr. Davidson tested these various reefs, more particularly those at Munadgee, where several shafts were sunk to a vertical depth of 51 ft., besides some distance beyond this on the underlay of the reef, and although the results would have been considered very payable in other and more accessible regions nothing less than 10-oz. ore was considered payable here. Doubtless, as Mr. Davidson remarks, when the transcontinental railway comes into existence a large mining field will be developed here, as the country, being so elevated, 2,000 ft. is very suitable for permanent settlement. Water also is abundant, and good grazing land is found in the many valleys and adjoining plains. The country is, moreover, plentifully timbered with large gums and other woods. Mr. Davidson, on completing his two years' work in this region, was requested to proceed to London, with the double object of recruiting and of conferring with his principals as to the advisableness of ceasing operations. It was while conferring with them that the western expedition was decided upon. Mr. Davidson started from the telegraph line at Kelly's Well, thirty-three miles south of Tennant's Creek telegraph station. The expedition consisted of Allan A. Davidson, leader; two prospectors, John Byrne and J. J. Davidson; a camel man, E. W. Wood; and Jack, the black boy; with nine bull camels, and rations for six months, together with eighty-five gallons of

water, equivalent to 17 days' supply. The party started on their westward journey on May 5, 1900. Long stretches were traversed where no water existed, but Providence favored Mr. Davidson by a fall of a succession of seasonable rains, which enabled him to cross the long dry stages of claypan waters. Mr. Davidson's farthest western point was longitude 128 deg. 51 min., latitude 20 deg. 6 min. In a range of hills, which Mr. Davidson named Gardiner, a splendid rock waterhole, containing about 18,000 gallons, was found. This was the only occasion on which Mr. Davidson came into contact with blacks, who proved harmless and inoffensive. All the hills and ranges were thoroughly tested for minerals. The expedition returned to Barrow's Creek in the middle of September, having been absent nearly five months. I have had over twenty-four years' experience in exploration, and am, therefore, qualified to express an opinion on exploration. I am very pleased to be able to state that Mr. Davidson's explorations are now nearly the last that can be made in Australia on an extensive scale, although there are, of course, many places yet which have never been visited by white men.

Mr. R. T. Maurice's Expedition North of Fowler's Bay.

[Read by Mr. W. R. Murray on December 16, 1901.]

The Chairman, in introducing Mr. W. R. Murray, the surveyor in Mr. Maurice's recent expedition, said that the party not only did a great deal of good work in locating the waters which would be useful to travellers in the future, but that they made interesting examinations into the manners and customs of the natives. The expedition was carried out at the sole expense of Mr. Maurice. The Council of the Geographical Society had done the least and only thing they could do to show their appreciation of the public-spirited enterprise of Mr. Maurice in carrying the expedition through, and made him an honorary member of the society, which honor Mr. Maurice had been graciously pleased to accept. Their thanks were due to the South Australian Government for so kindly sparing Mr. Murray, Mr. Maurice's able second in command, and allowing him to accompany the expedition.

INTRODUCTION.

It will be remembered that when Mr. Maurice returned to Adelaide a long account of the trip was published in the columns of the "South Australian Register" newspaper. The following extracts which have not been previously published will be found interesting:—

Mr. Maurice, who has for some years past been exploring and prospecting and collecting his beloved lizards, &c., in the country northerly from Nullarbor Plain, extending from Boundary Dam on the west to Lake Phillipson on the east, was anxious to clear up any doubts that might exist as to the nature of the country lying between Giles's tracks of 1875 and the Elder exploration party under D. Lindsay, and thence round between L. A. Wells's track on his southerly trip and that of the main party towards Victoria Spring. He also hoped to get into friendly communication with the natives in the Cavenagh and Rawlinson Ranges, and find out the causes lead-

ing to the massacre of several white men belonging to various overland and prospecting parties which have occurred in those regions during the past few years. It says something for Mr. Maurice's determination that he should choose this neglected strip of country for a "pleasure trip," for from the outset it was tolerably certain to be an arduous, not to say monotonous one, so far as the country was concerned, as, had there been any prominent hills or ranges they would have been noted by the above-mentioned parties from the highest points visited by them. There being no ranges as a corollary there could be no use for watercourses, and the only waters to be expected were rockholes, in the probably infrequent rock outcrops, or an occasional soakage in the sand. That the country must be inhospitable was inevitable, the plans of previous explorers in their descriptions of the country we purposed visiting generally reading "Nothing but sandhills to be seen in this direction so far as the eye can reach;" "Can see 25 to 30 miles S. and S.E. all sandhills," or some similarly encouraging remarks. Remarks like these, though, do not always act as a deterrent to a bushman wishing to penetrate the country. On the contrary, he often starts to reason and enquire why should such country be? As it is probably of little value from a pastoral or agricultural point of view, surely, he says, it must contain some minerals or metals of value, and fired by the hope of their discovery he goes cheerfully forth in the fond hope that any hardships he may endure will be recompensed.

NATIVE DAMS.

The first place of interest reached was Paraminna native dams. Here the natives had made two excavations in the clayey bed of lowest portion of an open saltbush flat, the excavated clay being built up and interlaced with twigs and branches into a horseshoe-shaped embankment about 2 ft. high and a bottom width of about $3\frac{1}{2}$ ft. For prolonging their water supply they are not of much value at present, as they are silted up to the original ground level, but originally there would have been water for a mob of blacks for a few additional weeks following the winter rain. In summer it would evaporate very rapidly. I know of no other part of the country in which these native dams obtain, but they are fairly frequent in this region, Mr. Maurice having discovered several in his travels, and are of considerable interest as specimens of native handiwork. With their primitive tools—they only possess small wooden scoops—they expended a quite unusual degree

of energy in forming them, and displayed a degree of intelligence which most tribes do not usually possess or are credited with. Perhaps they have one dominant master mind among them.

CLEARING THE WATERS.

We next visited Mobun (or Ouldabinna), which was one of Giles's depots, and whence Messrs. Tietkens and Young went northerly on their trip towards the ranges. Here was more water than we required luckily, as one of the holes—the principal one—had a dead emu in it, and it was an evil smelling job to clear it out. Voakes had the worst of it, and I could sympathise with his remark in his quaint Somerset dialect, "I'd sooner had some of he in our packbags," as we had finished our fresh emu meat several days since, and were now living on tinned meat, excellent no doubt, but not comparable to a nice tender emu chop fried with the accessory of an onion, a dish I can commend to any one who has not yet tried it. As illustrative of the length of time which tracks remain visible under favorable circumstances and in undisturbed country, I may say that a little west of Mobun we saw Giles's track of 1875. Of course, it is very faint, and only the keen eye of a black would at first detect it. Mr. Maurice tells me that further south, in the salt lake country, the tracks are still quite plainly visible, and that he has followed them for many miles. On reaching Waldana Spring, which is situated in latitude 28 deg. 48 min. 59 sec., and longitude by account 130 deg. 28 min. E., we found the hole full of a horribly stinking mass of black mud and decaying twigs, &c., with a little black liquid showing at the bottom. This we cleared out and bucketed some distance, so that it should not be washed back again, and Voakes, who was down the hole and had altogether the worst of it, had fairly earned a nobbler of whisky when he had finished his non-appetising job. The water rises through a narrow crack in sandstone underlying an impervious bed of kaolin, and makes at the depth to which we excavated it at the rate of about 300 gallons per diem. A larger supply might be got by going deeper, but it might be at the risk of vitiating the quality of the water, which is quite palatable, though villainously hard for washing purposes.

BLACKS, DINGOES, AND RABBITS.

On approaching a hill about 15 miles west of north from Mount Gosse, we saw fresh native tracks, and next morning surprised a native sneaking round the camp. He was bailed

up and given a slice of bread, and shortly afterwards three more men appeared, and gradually approached, and then signed to some others hidden in the adjoining scrub. Four old lubras came out, and, standing in line, commenced rubbing their stomachs. We were not so dense as not to understand this unmistakable hint, and they each had a large slice of bread given them. There were a number of others close by, but as those we had already seen said there was water several miles on, and that they would follow shortly, we did not wish to alarm them by stirring them out of their hiding-places.

. . . This country I had seen knee-high with splendid feed, such as geranium, kangaroo grass, a species of vetch, creepers, &c. There were thousands of acres of it, and it was really difficult to walk through, but at the present time it is quite bare, and the rabbits are barking and killing many of the edible shrubs and bushes. These natives are accompanied by dogs, which is generally not the case with those to the south or west. I may here remark that this back country is not the breeding ground for dingoes that it is generally credited with being. Tracks were not often seen after leaving the fringe of occupied country. We heard two at Waldana, and saw two and heard several more in the Mann Ranges. Scalpers will make no fortunes in this country, as the dingo is an article of diet, and for that reason alone is not likely to multiply.

HUNGRY BLACKS.

On reaching the Everard we met another mob of blacks. This tribe is generally inferior to the Musgrave lot, and they have, I fancy, a harder struggle for existence. Oolarinna Spring was next visited, and as usual the blacks had a decaying mess of twigs, quondong stones, &c., which had to be cleared out before drinkable water could be obtained. It being very dirty work, our newly acquired blacks came in useful, and we soon had all our camels watered. As showing the hard struggle of the blacks for existence at this time, I may mention that they had cleared out nearly everything within hunting range of the water, and hardly an animal, bird, snake, or lizard was obtainable, their principal food being the sun-dried husks of the quondong* soaked and softened in the water. Even their dogs were so hungry that they ate this unfamiliar diet, and pitiable objects they were, with hardly strength to walk, and they had no hope of catching any animal they might happen to flush.

* Quondong, or Native Peach.

IN THE SANDHILL COUNTRY.

The blacks here are of more stunted growth than the range tribe, but they are generally in good condition. Some of their lubras are great walkers. One of them who accompanied our caravan carried a heavy child all day in addition to a large cooliman on her head, and frequently three or four rabbits, of which they can always get sufficient, and frequently more than they require. These blacks keep no dogs, nor did we see or hear any in these parts. The days were now fairly warm, but this did not deter our Everard Range black, who had been presented with a new shirt, from also wearing a thick winter coat which I discarded; and since he had never previously worn any clothing he must surely have been unpleasantly warm. It says something for their constitutional hardiness that this man, when night time came—and the nights were very cold, too—folded his clothes up, and slept as he had always been accustomed, nude, between two small fires.

DINNER FOR THREE.

Their appetites are something to marvel at, and as an instance I may here give the bill of fare of the three range blacks one evening: Twelve ordinary-sized rabbits, a domestic cat and two half-grown kittens, a snake 4 ft. 6 in. long, and two iguanas. This, in addition to a large slab of bread and jam. These things they had at sundown, but when the sun next rose only the picked bones were to be seen. They snored heavily that night, and were audible 100 yards away.

SUMMING UP.

The word desert has been frequently used in these notes, and unquestionably the country, for a time at least, must remain so, there being no ranges to attract the clouds, which pass unbroken over these parts. But the question arises, Must it always remain so absolutely? As a matter of latitude it should not be so, it being no hotter, if as hot here as in many parts where successful pastoral pursuits are carried on; and one cannot but wonder whether some of our scientists who have been experimenting in that direction will not by electricity's aid be able ere many years have passed to compel the clouds to give down some of their moisture. There is a good soil and valuable vegetation in the country, which responds readily to the casual rains it gets; and there can be no doubt in my mind that the time will come when considerable strips of this country will be utilised. The impending railway line

to Western Australia must have its effect on it; but it is regrettable that it does not offer a favorable field for prospectors. Success in that respect, over the major portion of the country we traversed, I say unhesitatingly, is hopeless; but the time may yet come when good mineral fields are opened up in the ranges and country fringing them. We found traces of gold, but no fortunes; but our ill-luck in this respect was somewhat compensated by the discovery of excellent waters; and I may say here that I consider that in years to come, as the country is opened up, plenty of soakage wells will be procurable in the sandhill country. Every drop of rain that falls soaks in, and when travelling through them one frequently notes places where water would probably be obtained at 50 or 60 ft. The only waters available so far are on the surface, being rockholes or native wells; and it does not need human intelligence to find these. The dingo's instinct will prompt him to scratch in most of the places where the natives have found water. A collection of rock samples was made, sixty of which were submitted to the Government Geologist for his information and opinion. The location of the useful waters found by us, and the correction of positions of several, which had been erroneously fixed, is a work that future inland travellers will appreciate, and I will venture to say that few natural features were missed on our route, it being a matter of religion almost to visit all the higher ground. As mentioned before, the weather during the major portion of the trip was too cold to allow a numerous collection of reptiles, &c., but in spite of this a valuable collection was latterly made, and these have been classified by A. Zietz, F.L.S. Some of these, I understand, are new to science, among which is "*Diporophora Winnecke*," named after Mr. C. Winnecke. Mr. Zietz marks one species of scorpion as "undetermined." This was not our experience of them, the reverse rather. In conclusion, I would like to say a few words re the members of the party. The leader was zealous, almost to a fault, whilst Jack Lambert was an excellent man with his camels, whilst we fared excellently at W. Voake's hands. Finally, I wish here to tender my heartiest thanks to Mr. Maurice for inviting me to accompany him on his trip, whilst my thanks are also due to the Hon. the Commissioner of Crown Lands for his kindly permission in allowing me to make the trip.

Interesting lantern slides of photographs taken on the trip were shown. The three black boys Munjena (Fowler's Bay), Yarrie (Musgrave Ranges), and Peter (Everard Ranges),

whom Mr. Maurice brought to Adelaide, occupied seats on the platform.

On the motion of Dr. Eitel, seconded by Inspector Whitham, a comprehensive vote of thanks was passed to those responsible for the instructive and enjoyable evening. The Chairman returned thanks.

A Trip to the Western Interior of South Australia.

TRAVEL TALK BY MR. R. T. MAURICE.

[From the "S.A. Register."]

At the Lyric Clubroom, State Bank Chambers, on Monday evening, February 24, Mr. R. T. Maurice, the well-known explorer, gave what was aptly styled "Travel Talk" on his latest trip from Fowler's Bay to the Rawlinson Ranges. Mr. S. Newland presided over a good attendance.

In introducing the lecturer, the Chairman said they had long wished for Mr. Maurice to deliver a lecture on the subject of his explorations. Mr. Maurice had done a lot of service to the State, and he was prepared to do more. (Hear, hear.) He understood in a few days that Mr. Maurice would lead another expedition in search of water, which was said to be permanent by the natives in some of the driest country of the desert interior. Mr. Maurice must be enthusiastic, since he led these expeditions, fraught with labor, danger, and troubles, without any hope of reward except their gratitude, admiration, and recognition of the magnificent services he had rendered to the State. (Cheers.)

Mr. Maurice, who was received with cheers, said he would have the great honor of conducting them from Fowler's Bay to the Rawlinson Ranges, found by Messrs. Ernest Giles and Tietkens in 1874, and named by the former after Sir Henry Rawlinson, late President of the Royal Geographical Society, London. The country they were about to inspect being so vast, some 1,000 miles and more, they could well understand that the geological and ethnological specimens, fauna, and other objects of interest obtained during the trip could not be discussed, let alone inspected, so with their permission he would call the camels up and let them see for themselves what sort of places existed in the interior. The room was then darkened, and with the aid of the lantern a chart showing the journey Mr. Maurice did was thrown on to the large canvas. By this means the audience were able to see at a glance the route traversed. Then followed a series of sixty views taken by Mr. Maurice

during the trip, and shown on the canves in sequence. They were excellent pictures, and the audience followed them and listened to Mr. Maurice's remarks with the greatest of interest. He started with a photograph of Fowler's Bay of the present day, and explained how it was a whaling station in years gone by, and was named by Flinders. A view of the Nullarbor Plains led Mr. Maurice to explain that the proposed railway route was across this timberless plain, which extended 200 miles to the border of Western Australia, and then several hundred miles into Western Australia, where it was called Hampton Downs. Some years ago the Government worked so hard in putting down a bore, which was called diamond drill here, that they had not enough energy to take it up again. (Laughter.) There it remained for many years, until Mr. H. Y. L. Brown not only recovered the drill, but obtained water in various places which rose to the surface. The waters in the trip, most of them discovered by Mr. Maurice, were thrown on to the screen, and realistic and entertaining remarks made about them. Mr. Maurice took his pointer, and, showing the three characteristics in turn, said "porcupine, mulga, stones," and those were the only features of the weird and unattractive landscape. Now and again he evidenced possession of a rich vein of humor. For instance, when alluding to the porcupine bush, he said that those who had sat on it knew what it was. Then at Sladen Waters, after detailing how the natives here had attacked Ernest Giles and Tietkens and several other parties, he turned to the audience and remarked: "The blacks are not reliable here." Splendid photographs of Yarrie, Peter, and Munjena, the three black boys Mr. Maurice brought to Adelaide, were exhibited. Their tribal marks were pointed out, and individually the three boys were shown in various positions with their respective weapons. The method of carrying a young camel born on the march by fixing four sticks on to the saddle, lacing them together, and then placing the calf on top of a lot of bagging was beautifully illustrated by means of an excellent slide. A group of native women elicited the information that Mr. Maurice had tried to snap them while they were executing some extraordinary movements, wailing and howling the while over one of their number who had been killed by another tribe. "They desisted when I faced them with the camera," said Mr. Maurice, "so I got as much of them as I could." The oldest black residents of Fowler's Bay, Bismarck, and Kokatha Mary, had their many virtues recounted. The picture revealing "Yarrie's first shirt" caused roars of laughter. The black boy

was snapped in the act of struggling to get out of the garment. Mr. Maurice observed that some of our modern clothes were very hard to get into, and worse to get out of. Although it was Mr. Maurice's first attempt on a public platform, he acquitted himself admirably. In conclusion, he said they had probably found it warm that evening, but what could they expect in such a country, about which one of his comrades had said: "That one who would travel this country for pleasure would go to hell for a pastime." (Applause.)

On the motion of the Surveyor-General, Mr. W. Strawbridge, seconded by the Government Geologist, Mr. H. Y. L. Brown, a hearty vote of thanks was accorded the lecturer.

CELEBRATIONS
OF THE
FLINDERS CENTENARY.

The Flinders Centenary.

DISCOVERY OF PORT LINCOLN DISTRICT.

On Friday, February 21, 1902, was celebrated the one hundredth anniversary of the discovery of Port Lincoln by Captain Matthew Flinders, a date of unusual interest which South Australians are not likely to ignore. This year is really the centenary of the annexation of South Australia to the British Crown. But for the promptitude and thoroughness with which Flinders carried out the work entrusted to him by the British Government, a considerable portion of what is now South Australian Territory would in all probability have been claimed by France. Before he left England Flinders had repeatedly urged the Lords of the Admiralty to expedite his departure, and mentioned as a reason for his impatience that a French expedition under the command of Captain Baudin had sailed for the same destination several months earlier, and he was afraid he might be too late to claim the honor of having been the first to explore the coastline from King George's Sound. That these fears were not altogether groundless is proved by a remark which one of the officers of the French expedition is reported to have made to Flinders when the two ships were lying at anchor at Port Jackson after the survey had been completed. "Captain," he said, "if we had not been kept so long picking up shells and catching butterflies in Van Diemen's Land you would not have discovered the south coast before us." As a matter of fact, however, the honor of having made the first discovery on the south coast of South Australia was due to Lieutenant Grant, who sighted Mount Gambier on December 3, 1800. But apart from its political significance, Flinders's great achievement is worthy of remembrance as an instance of British enterprise and endurance, and his account of the voyage, which was published within a few days of his death, is full of stirring and romantic incidents. A brief summary of the principal features of the trip will serve to show the significance of the events which provided material for the first chapter of South Australian history.

On February 21 also occurs the one hundredth anniversary of the tragic episode which resulted in the untimely death of Mr. John Thistle, master of the Investigator, and seven

other members of the crew which Captain Matthew Flinders selected to assist him in the great work of exploring and surveying the hitherto unknown southern coastline of the Australian continent. And the names given by the great navigator to Thistle Island and its surroundings serve to recall one of the earliest and saddest events in South Australian history. Up to that point the voyage of the Investigator had been comparatively uneventful, and the monotonous and uninviting appearance of the shores of the Great Australian Bight had exercised a somewhat depressing effect upon the spirits of the explorers. But when Flinders caught a glimpse of the inlet which he afterwards named Sleaford Bay on the evening of February 19 the circumstance gave his comrades a new interest in their work, and set them speculating upon the possible results of their examination of the locality on the following day. In accordance with his usual practice, Flinders had the Investigator kept well away from the coast during the hours of darkness, but shortly after daydawn on Saturday, February 20, the vessel's head was again turned towards the land. A stiff breeze blew during the early part of the day, and Flinders considered it would be dangerous to remain in the Bay. He therefore had the ship worked out to sea before Sleaford Bay had been thoroughly examined. In the afternoon, when the weather was more favorable, the Investigator was anchored near Thistle Island.

While the officers were on deck that evening they noticed the tide running from the north-eastward at the rate of more than a mile an hour. This was considered remarkable, as no set of tide worthy of being noted had been observed along the coast hitherto. No land could be seen in the direction from which the current came, and its existence excited many conjectures. "Large rivers," says Flinders in his journal, "deep inlets, inland seas, and passages into the Gulf of Carpentaria, were terms frequently used in our conversations of this evening, and the prospect of making an interesting discovery seemed to have infused new life and vigour into every man in the ship." On the following day—Sunday, February 21—Flinders went ashore on the eastern land. He found seals upon the beach, and numberless traces of kangaroos in the scrub. There were also indications of recently extinguished bush fires, but no signs of the presence of natives. "Upon the whole," he wrote, "I satisfied myself of the insularity of this land; and gave to it, shortly after, the name of Thistle's Island, from the master who accompanied me." The members of the party were greatly disappointed that they were not able to

find fresh water on the island, because the ship's hold was almost empty, and the discovery of a stream or spring was becoming a matter of urgency. In the afternoon, while the commander was taking observations, Mr. John Thistle was sent out with the cutter to search for an anchorage nearer the mainland. Taking with him William Taylor, a midshipman, and six men, he set off to carry out his instructions, little thinking that he would never return to the ship. Flinders, in his brief but sympathetic account of the incident, says: "At dusk in the evening the cutter was seen under sail, returning from the mainland; but not arriving in half an hour, and the sight of it having been lost rather suddenly, a light was shown, and Lieutenant Fowler went in a boat with a lanthorn to see what might have happened. Two hours passed without receiving any tidings. A gun was then fired, and Mr. Fowler returned soon afterward, but alone. Near the situation where the cutter had been last seen he met with so strong a rippling of the tide that he himself narrowly escaped being upset; and there was reason to fear that it had actually happened to Mr. Thistle. Had there been daylight it is probable that some or all of the people might have been picked up; but it was too dark to see anything." He also adds a note to the effect that sharks were numerous in the bay, and only two of the men in the boat were expert swimmers.

On the following day the ship was taken through Thorny Passage, and anchored in a cove near which the boat was last seen by those on board. Every part of the bay was searched in the hope that some of the unfortunate men might have reached the shore, but the quest proved fruitless, and even the melancholy satisfaction of rescuing their bodies from the waves was denied to Flinders. The boat was found by one of the search parties next day, floating in the bay bottom upwards, and the mast, sail, and some other wreckage were picked up subsequently. At length, on February 24, the commander reluctantly decided that it was impossible to devote further time to what was evidently destined to be a fruitless search, and as the need for obtaining a fresh supply of water was pressing he began to make preparations for continuing the voyage. His decision is recorded in his journal in the following terms: "I therefore caused an inscription to be engraven upon a sheet of copper and set up on a stout post at the head of the cove, which I named Memory Cove, and further to commemorate our loss I gave to each of the six islands nearest to Cape Catastrophe the name of one of the seamen." The islands referred to still bear the designations Grindal, Hopkins, Smith, Williams, Little, and Lewis.

The copper plate to which reference is made above was the first monument erected on South Australian soil. A small fragment of it was picked on the beach near Port Lincoln some years ago and is now carefully preserved in the Public Library. About two-thirds of the original inscription had been worn away by the elements to which the plate had been exposed, but a sufficient number of words remained visible to give the authorities a key to the remainder. Strange to relate, Flinders, who was noted for the care which he bestowed upon details in the compilation of his journal, omitted to record the words which he ordered to be engraved on the plate; and travellers who saw it in later years, before it had been defaced, also failed to copy the inscription. The following lines, which were inscribed upon the new plate erected on the shore of Memory Cove by the South Australian Government a few years ago, are, doubtless, as close an approximation to the original as is possible in the circumstances:

MEMORY COVE.

H.M.S. Investigator, M. Flinders, Comr.

Anchored here Feby. 22, 1802.

Mr. John Thistle, Master.

William Taylor, Midn., and
six able seamen were unfortunately
lost near this place from being upset
in a sudden squall. The boat was found,
but the bodies were not recovered.

At the bottom of the fragment there are three letters, CA and E., but no one has yet been able to suggest a word or words which would fit into the vacant spaces that precede and follow the first two, and their meaning remains a mystery. Flinders also penned in his journal a brief but significant tribute to the unfortunate officer and midshipman. Of Mr. Thistle he wrote: "He was truly a valuable man, as a seaman, an officer, and a good member of society. I had known him, and we had mostly served together, from the year 1794. . . . From his merit and prudent conduct, he was promoted from before the mast to be a midshipman, and afterwards a master in His Majesty's Service. His zeal for discovery had induced him to join the Investigator when at Spithead and ready to sail, although he had returned to England only three weeks before, after an absence of six years. William Taylor he described as "a young officer who promised to become an ornament to the service, as he was to society by the amiability of his manners

and temper." He also placed on record his appreciation of the services rendered by the missing men.

At the foot of the page in his journal on which the loss of the cutter is recorded, Flinders added the following note: "This evening (February 22) Mr. Fowler told me a circumstance which I thought extraordinary; and it afterwards proved to be more so. Whilst we were lying at Spithead, Mr. Thistle was one day waiting on shore, and having nothing else to do he went to a certain old man named Pine, to have his fortune told. The cunning man informed him that he was going on a long voyage, and that the ship, on arriving at her destination, would be joined by another vessel. That such was intended he might have learned privately, but he added that Mr. Thistle would be lost before the other vessel joined. As to the manner of his loss the magician refused to give any information. My boat's crew, hearing what Mr. Thistle said, went also to consult the wise man; and after the prefatory information of a long voyage, were told that they would be shipwrecked, but not in the ship they were going out in; whether they would escape and return to England he was not permitted to reveal." The prediction was fulfilled in every detail. Mr. Thistle lost his life in Memory Cove before the Investigator was joined by the Lady Nelson, a small vessel which accompanied her as a tender during the later stages of the survey; while the Porpoise, to which Flinders transferred his crew when the Investigator was pronounced to be unfit to return to England, was wrecked on the Barrier Reef, and those on board narrowly escaped being drowned.

Two days after the vessel entered Memory Cove some of the members of the scientific staff informed the commander that while examining the country from the top of a high hill at the back of the bay they had observed a sheet of water extending a considerable distance behind the coastline. Flinders at once proceeded to the place indicated, and from the top of a large granite boulder he saw what appeared to be an extensive port beyond the point where his former excursions terminated. He determined to explore the new bay next day, and early on the morning of February 25 the anchor was weighed and the ship's head turned towards Boston Bay. At 2 o'clock in the afternoon of the same day she passed round Cape Donington. As the vessel proceeded up the bay Flinders was greatly impressed with the value of the natural harbor which lay before him, and he wrote in his journal: "The port, which formed the most interesting part of these discoveries, I named Port Lincoln in honor of my native province." When he landed, however, he

was disappointed that he was not able to find fresh water, although parties were sent out to examine the country in various directions. From the top of Stamford Hill a large sheet of water could be seen some distance inland, but after walking two miles to examine it Flinders found that it was brackish and undrinkable. The locality was named Sleaford Mere. Finally water was obtained by digging in the sand within 100 yards of the head of the port. The explorers remained at Port Lincoln for more than a week, and on March 6, to quote Flinders's words: "Our operations in Port Lincoln being complete, we prepared to follow the unknown coast to the northward, or as it might be found to trend."

That Flinders dearly loved his home in the county of the fens, notwithstanding his passion for foreign travel and adventure is demonstrated by the cluster of Lincolnshire names which he conferred upon this portion of the Australian coast. **Cape Donington** commemorates his natal village; while **Boston** and **Louth Bays**, **Spalding Cove**, **Kirton Point**, **Stamford Hill** and **Mere**, **Sleaford Bay**, and **Sisbey**, **Grantham**, and **Spilsby Islands** all recall some feature of his native place. **Reevesby Island** was named after the county seat of Sir Joseph Banks, whose friendship for the great explorer is further commemorated by the group of islands outside the bay which bear his title. **Gambier Island** perpetuates the memory of Admiral Gambier, who had a seat on the Admiralty Board when the Investigator was secured for the expedition. Two other members of the same body were honored when **Points Riley** and **Pearce** were named; while the gulf which Flinders left Port Lincoln to explore was called after the First Lord of the Admiralty, **Earl Spencer**.

The thoroughness which characterised Flinders' examination of the country in the vicinity of the coast is shown by the following extract from his journal:—Port Lincoln is certainly a fine harbor; and it is much to be regretted that it possesses no constant run of fresh water, unless it should be in **Spalding Cove**, which we did not examine. Our pits at the head of the port will however, supply ships at all times; and though discolored by whitish clay, the water has no pernicious quality, nor is it ill tasted. This and wood, which was easily procured, were all that we found of use to ships; and for the establishment of a colony, which the excellence of the port might seem to invite, the little fertility of the soil offers no inducement." This qualified praise of the locality is in marked contrast to the glowing description penned by M. Peron, one of the officers attached to the French ship *Le*

Geographe, which visited the site shortly afterwards. The eloquent Frenchman wrote: "As if Nature were inclined, in favor of this port, to change the character of monotony and barrenness stamped upon the neighboring land, she has formed its shores of gently rising slopes and covered them with umbrageous forests. We did not find any fresh water on this spot, but the vigor and liveliness of the vegetation and the height of the country were certain indications to us of some rivulets and copious springs. . . . Worthy to rival Port Jackson, Port Lincoln is under every point of view one of the finest harbors in the world, and best adapted to receive a European colony." Time has shown that the careful and painstaking Englishman's estimate with respect to the latter point was more reliable than the optimistic views of the Frenchman, who assumed the existence of "rivulets and copious springs."

FRANKLIN'S TRIBUTE TO FLINDERS.

Another monument has been erected near Port Lincoln to commemorate Flinders' connection with the harbor. It is worthy of mention, although it does not possess the historical interest which attaches to the tablet described above. Reference was made in a previous article to the fact that Sir John Franklin, the celebrated arctic explorer, served as a midshipman on board the *Investigator* during the voyage under review. When he was filling the position of Governor of Van Diemen's Land nearly 40 years later he caused an obelisk to be erected on Stamford Hill.

This monument, a photograph of which is reproduced in plate i., measured about 25 ft. in height, and was 8 ft. square at the base. Its erection was entrusted to Lady Franklin and her daughter, who brought it to South Australia from Hobart in the ship *Abeona*. Captain Blackburn, the master of the vessel, with the assistance of two other experts, identified the spot which Flinders had designated Stamford Hill, and the obelisk was set up in a commanding site on its summit. There it has remained for more than 60 years, an enduring tribute by one illustrious seaman to the memory of another. About 25 years later it was found that the monument had fallen into disrepair, and, in accordance with orders issued by the South Australian Government, it was refaced with marble. A new tablet, which bears a facsimile of the above inscription, was substituted for the original one, which had been broken. The latter was carefully pieced together, and it is still preserved in the vestibule of the Adelaide Public Library. A photo. of the original tablet appears in plate ii.

AN OLD LANDMARK RESTORED.

One other incident must be mentioned in this connection. After the fragments of the copper plate which Flinders set up on the shore of Memory Cove were recovered a new tablet was prepared and inscribed so as to make it resemble the old one as nearly as possible. On February 21, 1897, that being the ninety-fifth anniversary of the tragic death of Mr. Thistle and his comrades, a Government party, consisting of Messrs. T. Gill (Under Treasurer), A. Vaughan (Government Photo. Lithographer), and C. Dabovich (Inspector of Fisheries), with two men, visited Memory Cove and affixed the new plate to a large block of jarrah which they had set up near some eucalyptus trees at the head of the bay, a short distance above high-water mark. A copy of the tablet is reproduced in plate iii. When they had finished their work the narrative of the loss of the boat was then read from the journal of Flinders, and the little party drank in solemn silence to the memory of the men whose loss forms one of the most pathetic incidents recorded in the chequered annals of exploration in South Australia.

KANGAROO ISLAND.

A monument was unveiled at Queenscliff on March 22nd to commemorate the landing of Captain Flinders exactly 100 years ago. Having just previously discovered and explored Spencer's Gulf, he had anchored off Cape Spencer, when the lowering sky indicated the approach of a heavy gale, and he steered for land, which could be seen to the southward, now known as Kangaroo Island. The wind being fresh from the west, the Investigator made short trips during the night between the two points, Yorke's Peninsula and Kangaroo Island. At daylight Flinders stretched out to the south-east to get under the lee of the southern land, and Point Marsden was passed before a comfortable position could be secured. At 6 o'clock in the evening of Sunday, March 21, 1802, the Investigator dropped anchor within a mile of the shore, some twenty miles east of Point Marsden. On Monday morning the captain and some of the ship's company landed, and while making for the shore a number of dark-brown kangaroos were seen feeding upon a grass plot by the side of the wood. The captain killed ten of these animals, and the remainder of the party made up the total of 31, which were carried on board in the course of the day. The smallest of the kangaroos weighed 69 lb., and the largest 125 lb. Flinders sought to reach the higher lands with the surveying instruments, but

the thickness and height of the wood prevented anything beyond being distinguished. From the tameness of the kangaroos, the presence of seals on the shore, and the absence of all traces of man, it was judged that Kangaroo Island was uninhabited. After having been without fresh meat for four months, the change to kangaroo flesh was heartily welcomed, and in gratitude for so seasonable a supply, Flinders named this southern land Kangaroo Island.

On the morning of March 24 the Investigator headed back towards Cape Spencer to continue the examination of Yorke's Peninsula. A hummock seen to the north-west, as the vessel journeyed from Kangaroo Island was named Troubridge Hill. On reaching within eight miles of the largest Althorpe Island, the ship was hove to, and headed eastward. The wind set in steadily from the south-east, and for two days the Investigator was tacking about in the strait between Kangaroo Island and the Peninsula. It was named Investigator's Strait, after the ship.

The monument, which was unveiled by Mr. C. Tucker, M.P., was imported from Adelaide, stands about 15 ft. high, and is of Murray Bridge stone. On the side facing the road a marble plate, inlaid, bears the inscription:—

Erected to the memory
of
CAPTAIN MATTHEW FLINDERS,
who, sailing in H.M.S. Investigator, landed upon
and named Kangaroo Island
on March 22, 1802.

Unveiled on March 22, 1902.

Mr. Tucker said he was grateful for the honor conferred on him in being asked to perform the ceremony. He congratulated the islanders upon the patriotic spirit which prompted the movement for honoring the great navigator. Nothing he could say would increase their admiration for Flinders, who had played such an important part in connection with the early history of the State. Kangaroo Island would always occupy a prominent place in the page of Australian history, because it was from a spot not far from where they were standing that Flinders saw the high hill on the mainland, which he called Mount Lofty, on which that afternoon Lord Tennyson had named another obelisk to his memory. The Queenscliffe obelisk had an even more interesting association

than that on Mount Lofty, because Flinders was on the island, whereas he merely saw Mount Lofty. The obelisk would for all time record the age of the island so far as history went back, and remind generations to come of the heroic work of the great navigator. He had very great pleasure in unveiling the obelisk.

THE FLINDERS COLUMN, MOUNT LOFTY.

An interesting and impressive ceremony took place at the summit of Mount Lofty on Saturday afternoon, March 22, when His Excellency the Governor, Lord Tennyson, dedicated to the memory of Captain Matthew Flinders, R.N., the white obelisk which for many years has served as a landmark to mariners coming up the Gulf. The column (see plate), which is 50 ft. is a monument to the illustrious navigator who sighted and named Mount Lofty 100 years ago, but for some reason it was never recognised as such. Several months ago a suggestion made by Mr. A. T. Magarey that it should be formally dedicated and named on the 100th anniversary of the discovery of the mount was approved by the South Australian Branch of the Royal Geographical Society, and sanctioned by the Government. The Council of that body is to be congratulated upon the successful accomplishment of such a worthy undertaking. Saturday was an ideal day for a drive through the hills, and when His Excellency the Governor, who was accompanied by Lady Tennyson and their sons, reached the top of Mount Lofty shortly before 4 o'clock they found a large and representative gathering of visitors and local residents assembled at the base of the column. Among those present were Lord Richard Nevill, Mdlle. Dussau, the Attorney-General, Hon. J. H. Gordon; Senator Sir John Downer, Brigadier-General Gordon, Captain Clare (Naval Commandant), Mr. J. Darling, sen. (who was Commissioner of Public Works when the obelisk was built), Mr. S. Newland (Acting President of the Royal Geographical Society), the Hon. J. L. Parsons, M.L.C., Messrs. T. Gill, W. Herbert Phillipps, A. T. Magarey, W. B. Wilkinson, C. L. Whitham, and E. H. Newman (members of the Council of the Royal Geographical Society), Dr. Stirling, Messrs. W. J. Sowden, P. Nesbit, K.C., W. R. Boothby, C.M.G., F. J. Gillen, D. Lindsay, G. J. R. Murray, J. Rounsevell, C. M. Muirhead, E. Davies, E. W. Hawker, and T. Duffield. Mr. E. P. Pilgrim, who is a grandnephew of Captain Flinders, was absent from the State, but Mrs. Pilgrim and Master M. F. Pilgrim were present. Two other relatives of the great explorer, Mrs. Lewin and Nurse Chambers, were among the spectators.

The gun-metal plate, which had been affixed to the column, was veiled with a Union Jack, which was used in connection with the funeral of Messrs. C. A. Wells and G. L. Jones, the explorers who perished in Western Australia in 1897.

It is peculiarly appropriate that this ceremony should be performed by Lady Tennyson, for His Excellency is bound by ties of relationship both to Captain Flinders and to Sir John Franklin, the famous Arctic explorer, who as a youth of fifteen was also a voyager in the *Investigator* to these shores. There are three other relatives of Captain Flinders in South Australia—Mrs. Lewin, of North Unley; Miss Chambers, of the Children's Hospital; and Mr. E. P. Pilgrim, of the accountant's office, G.P.O.

Preparatory to the ceremony, Mr. A. T. Magarey had the scrub cleared away from the base of the monument, and a block of Monarto granite was inserted into the stone column about ten feet from the ground. To this was attached a gun-metal plate bearing the inscription in Plate v.

"Henceforth and hereafter," said His Excellency the Governor, standing beside the obelisk on the top of Mount Lofty on Saturday afternoon, "this column shall be known to all men for all generations as 'The Flinders Column.'"

In naming the obelisk after the distinguished explorer and navigator, Matthew Flinders, and on uncovering the plate bearing the inscription, His Excellency said: Ladies and Gentlemen—I esteem it a great honor and privilege to be asked to unveil the tablet which has been attached to this obelisk, and to name the column after the discoverer of South Australia, Captain Matthew Flinders, the heroic sailor and great navigator. (Cheers.) I need not remind you that he it was who named this mountain—or high hill, as he called it—which he saw for the first time from Kangaroo Island 100 years ago to-morrow. I have been asked to read to you the passages from his journal which refer to the incident. The record is as follows:

"The whole ship's company was employed this afternoon, in skinning and cleaning the kangaroos: and a delightful regale they afforded, after four months' privation from almost any fresh provisions. Half a hundredweight of heads, fore-quarters, and tails were stewed down into soup for dinner on this and the succeeding days; and as much steaks given, moreover, to both officers and men, as they could consume by day and by night. In gratitude for so seasonable a supply, I named this southern land Kangaroo Island. . . ." "Not being able to obtain a distinct view from any elevated situation,

I took a set of angles from a small projection near the ship, named Kangaroo Head; but nothing could be seen to the north; and the sole bearing of importance, more than had been taken on board, was that of a high hill at the extremity of the apparently unconnected land to the eastward: it bore N. 39 deg. 10 min. E., and was named Mount Lofty."

He goes on:

"The soil of that part of Kangaroo Island examined by us, was judged to be much superior to any before seen, either upon the south coast of the continent, or upon the islands near it; with the exception of some portions behind the harbors of King George's Sound. . . . Never perhaps had the dominion possessed here by the kangaroo been invaded before this time. The seal shared with it upon the shores, but they seemed to dwell amicably together. It not infrequently happened, that the report of a gun fired at a kangaroo near the beach, brought out two or three bellowing seals from under bushes considerably further from the water side. The seal, indeed, seemed to be much the most discerning animal of the two, for its actions bespoke a knowledge of our not being kangaroos, whereas the kangaroo not infrequently appeared to consider us to be seals."

I would also like to remind you that Flinders not only named Mount Lofty, but also many other localities on the coast. Perhaps the most important service rendered by him to South Australia was the discovery and survey of Spencer's and St. Vincent's Gulfs. But his connection with Australia does not end there. He was the first sailor who succeeded in circumnavigating Tasmania and Australia; and you should never forget that it was he who first applied the name of Australia to this continent. (Cheers.) It is a remarkable coincidence that the column on Stamford Hill, near Port Lincoln, was dedicated to the memory of Captain Flinders forty years ago by Sir John Franklin, a relative of the honored navigator, who at that time held the position of an Australian Governor; while to-day the obelisk upon this higher eminence which dominates yonder beautiful City of Adelaide is being dedicated by another relative, who is also an Australian Governor. (Cheers.) And now, ladies and gentlemen, I declare by virtue of my office that henceforth and hereafter this obelisk shall be known to all men and for all generations as The Flinders Column. (Loud cheers.)

OTHER SPEECHES.

Mr. Newland said:—Your Excellency, Ladies, and Gentlemen—In the absence of the popular President of the South

Australian Branch of the Royal Geographical Society, it devolves upon me, as Acting President, to represent the Society to-day. Among the many objects of the Society one of the most important is to promote and foster a healthy interest in the history of this country, and especially of this State. With this object in view the Society has looked forward to the centenary of our immortal Flinders as a fitting occasion to erect a memorial to his fame on the mountain he discovered. It has taken the form of a tablet, set in the obelisk already built, and which, with the approbation of the Government, is to be named after him. One hundred years ago to-morrow the illustrious seaman and navigator Matthew Flinders, commander of H.B.M.S. Investigator, stood upon a point of Kangaroo Island, which he called Kangaroo Head, and first beheld in the dim distance this mountain. No doubt an imposing object, though possibly it appeared more imposing than its real height warrants, for he gave it the somewhat pretentious name of Mount Lofty, which it has retained ever since. We meet to-day to commemorate that interesting event by unveiling an inscribed tablet and naming the column on the crest of the mountain his deeds have for ever identified with his name. Twenty-nine years after Flinders, Captain Collet Barker, with Mr. Kent, his second in command, left their vessel in St. Vincent's Gulf, and on April 17, 1831, made their way to the top of the mountain, they being the first white men who ever did so. In looking at the magnificent panorama before us at the seas that Flinders discovered, named, and traversed, we cannot fail to be impressed with the change that the century has wrought since he saw these shores. The ill-fated Barker marvelled at the lavish natural beauty. What a different beauty we see before us in this year of grace, 1902. He looked upon a broad scene of wild nature; we see around us the happy homes of 100,000 people. On behalf of the Society I now ask your Excellency to unveil the tablet. (Cheers.)

After Lord Tennyson had pulled aside the flag which had been suspended in front of the inscription, the Attorney-General asked those present to accord a hearty vote of thanks to His Excellency. He felt sure that the eloquent speech to which they had just listened would do a great deal to recall the memory of the illustrious sailor who had been too much forgotten by South Australians in the past. The motion was carried with acclamation, and at the instance of the Attorney-General three cheers were given in memory of Captain Flinders.—"Register," March 24, 1902.

ENCOUNTER BAY.

The Meeting of Flinders and Baudin Commemorated at the Bluff.

The fourth ceremony of its kind in connection with the Flinders centenary took place at the Bluff, in the Encounter Bay district, on Tuesday morning, April 8, and was the occasion of the third vice-regal visit to Victor Harbor during the present Governor's term of office. Visitors to the charming watering places of "Arcadia" may now claim additional inducement for a trip to this prominent headland of irresistible attraction. Hitherto the Bluff, otherwise Rosetta Head (named after the mother of Mr. John Howard Angas), has been noted chiefly because of its extraordinary physical features, but now at the very summit of the bold whale-shapen hump appears an enduring gunmetal plate let into a granite rock, the inscription on which explains the whole of Tuesday's proceedings in a nutshell. It is as shown on plate vi.

It was a happy idea to celebrate the centenary of the meeting of two men to whom Australia owes so much—Flinders and Baudin—in such a manner. It was well that the Geographical Society should take the matter in hand and engineer it, and it was a peculiar coincidence that Lord Tennyson, a relation of Flinders, should be Governor of the State at such a juncture.

THE CEREMONY.

His Excellency the Governor, accompanied by Lady Tennyson and Lord Richard Nevill, arrived at Victor Harbor in the vice-regal car at 9.45 on Monday night, and were accommodated at the Grosvenor Hotel. The weather on Tuesday was dull, but several hundreds of people journeyed to the Bluff to witness the ceremony. The shops were closed, and Victor Harbor for the time being was almost deserted. The Geographical Society was represented by the Acting President (Mr. Simpson Newland), the Secretary (Mr. T. S. Reed), Messrs. W. P. Auld, A. M. Simpson, and T. Gill (members of the Council), and Messrs. T. Piper and David Lindsay. Among the others present besides the vice-regal party were Mrs. Newland, Mr. E. B. Grundy, K.C., and Mrs. Grundy, Mr. Owen Smyth (Superintendent of Public Buildings, which department carried out the work on the Bluff), and Mrs. Smyth, Messrs. Tucker, von Doussa, McDonald, Blacker, Dumas (candidates for the District of Alexandra), Dr. A. Powell, Robert Jaeger (who settled in the district in 1839), E.

P. Pilgrim (whose mother was a niece of Captain Flinders), **David Bell**, **W. B. Caw**, **John Acraman**, **Mr. and Mrs. G. Bunday**, the **Rev. W. Penry Jones**, **Messrs. E. H. Cudmore**, **W. Porter**, **A. Battye**, **S. W. Jackman**, **G. Goodwin**, **M. Rumbelow**, **E. R. Bolger**, **W. S. Reid**, **H. B. Hughes**, and **C. J. Weymouth**. Some people said that **Petrel**, the original of the character in **Mr. Simpson Newland's "Paving the Way,"** was there. There are numerous surmises concerning the identity of **Petrel**. Everybody in **Encounter Bay** knows, or thinks so. We believe that **Mr. Newland's** beautiful character was half woman and half myth, but we are not in the confidence of the author. Members of the **Geographical Society** are in favor of the inlet beyond the **Bluff** being named **Petrel Bay**. At 11 o'clock, when the vice-regal party arrived, the summit of the **Bluff** was crowded with people, and 10 photographers snapped the scene from every aspect. Light rain fell during the delivery of **His Excellency's** interesting speech, which was as follows:—

Ladies and Gentlemen—It is always a great pleasure to **Lady Tennyson** and myself to visit this delightful locality, with its romantic bays, its rocky headlands, its peaceful hills, its beautiful gullies and ravines, and I have several times before stood upon this **Bluff**, made well known to the world by the picturesque story of **Mr. Simpson Newland's "Paving the Way."** But we are not come here to celebrate the beauties of the **Bluff**, **Encounter Bay**, **Victor Harbor**, **Port Elliot**, **Middleton Bay**, but to perpetuate the meetings of that heroic sailor and great navigator, **Matthew Flinders**—the discoverer of **South Australia**, captain of the **Investigator**—with **Nicolas Baudin**, captain of the French ship, **Le Geographe**, on **April 8, 1802**, in **Encounter Bay**. **Flinders** was son of a surgeon, and was born at **Donington**, in **Lincolnshire**, on **March 10, 1774**, and in 1790 entered the **Royal Navy**. **Robinson Crusoe**, he said, sent him to sea. He first served in the **West Indies**, and he was present on board the **Bellerophon** at **Lord Howe's** victory over the French in 1794, off **Ushant**, on "the glorious 1st of June." He came out to **Australia** in 1795, and determined to survey the coast south of **Port Jackson**, and you will remember his famous voyage on the **Tom Thumb**, an 8-ft. boat, with the daring young surgeon **Bass**. He himself writes:—"It was not without some reason attributed to **England** as a reproach that an imaginary line of more than 250 leagues in extent in the vicinity of one of her colonies should have been so long suffered to remain traced upon the charts under the title of 'Unknown Coast.' " This reproach he deter-

mined to wipe out by completing the work of the three great Australian pioneer sailors—Tasman, Dampier, and Cook. At that time his great achievement was to discover Bass Straits, and to be the first man to circumnavigate Van Diemen's Land, now Tasmania. After making many other discoveries on the north-eastern coast of Australia he returned to England in the good ship *Reliance*. His friend and admirer, Sir Joseph Banks, then persuaded the Admiralty to fit out H.M.S. *Investigator*, in order to survey the coast of Australia—suggesting that Flinders should be in command. For some weeks it was uncertain whether Grant, whose discovery of Mount Gambier has recently been celebrated, or Flinders should receive the appointment. Flinders had lately married the daughter of Captain Chappelle, and desired to take his wife on his fresh voyage of discovery. The Admiralty was angry at this proposed breach of discipline, and Sir Joseph Banks threatened him with the loss of the command. But Flinders felt that he was born to be a discoverer, and that his duty to his country compelled him to give his services without reservation, so he agreed to leave his wife behind, and he was forthwith appointed. Owing to his shipwreck off the coast of Queensland, where his heroism in saving the shipwrecked sailors became world-famous, and owing to his subsequent capture by the French and his detainment at Mauritius for six years, which utterly broke his heart and his spirit, he did not see that poor little wife again for nine whole years. Mr. Pilgrim, a near relative of Flinders, who resides in South Australia, has handed me the following interesting extract from a letter of Mrs. Flinders: "Respecting my union," she writes, "with my beloved Captain Flinders, I think I may say during the period we were permitted to live together, not a cloud cast a shadow over the sunshine of our affection for each other, and each day seemed but to rivet our attachment the more firmly." As some of you know, on his outward voyage, he made Cape Leeuwin on September 7, 1801, and eventually, on March 21, 1802, arrived at Kangaroo Island, looked up at a height looming in the distance on March 22, and named it Mount Lofty.

On Wednesday, April 7, the *Investigator* beat her way through Backstairs Passage, and on April 8—this day a hundred years ago—Flinders writes: "At 4 a white rock was reported from aloft to be seen ahead. On approaching nearer it proved to be a ship standing towards us; and we cleared for action in case of being attacked. The stranger was a heavy-looking ship, without any topgallant masts up, and our colors being hoisted, she showed a French ensign, and after-

wards an English Jack forward, as we did a white flag. At half-past 5, the land being then five miles distant to the north-eastward, I hove to; and learned, as the stranger passed to leeward with a free wind, that it was the French national ship *Le Geographe*, under the command of Captain Nicolas Baudin. We veered round as *Le Geographe* was passing, so as to keep our broadside to her, lest the flag of truce should be a deception; and, having come to the wind on the other tack, a boat was hoisted out, and I went on board the French ship, which had also hove to." The captains then held conference. Flinders proceeds: "At the above situation of 35 deg. 40 min. S., and 138 deg. 58 min. E., the discoveries made by Captain Baudin upon the south coast have their termination to the west, as mine in the *Investigator* have to the eastward." But Monsieur Peron, naturalist to the French expedition, laid a claim for his nation to all Flinders's discoveries. Flinders remarks on this: "Yet M. Peron was present afterwards at Port Jackson when I showed one of my charts to Captain Baudin, and pointed out the limits of his discovery; and so far from any prior title being set up at that time to Kangaroo Island and the parts westward, the officers of the *Geographe* always spoke of them as belonging to the *Investigator*. The first lieutenant (Mons. Freycinet) even made use of the following odd expression, addressing himself to me in the house of Governor King, and in the presence of one of his companions (I think Mons. Bonnefoy, : "Captain, if we had not been kept so long picking up shells and catching butterflies at Van Diemen's Land, you would not have discovered the south coast before us." The head of this bay (Encounter Bay), Flinders says, "was probably seen by Captain Baudin in the afternoon; and in consequence of our meeting here, I distinguish it by the name of Encounter Bay." That meeting is the cause of our meeting here to-day. As I said at Mount Lofty, Flinders named many of the localities on the coast of South Australia, but his most important service to us was his discovery and survey of Spencer's Gulf and of St. Vincent's Gulf. As you are aware, he was the first man who circumnavigated Australia, and he was the first to apply the name of Australia to this continent.

The year before last I had the pleasure of seeing the monument erected by my great uncle, Sir John Franklin, to the memory of his fellow-sailors on board the *Investigator*. It stands on Stamford Hill, above Port Lincoln, and the inscription runs thus, showing Franklin's reverence for Flinders: "This place, from which the gulf and its shores were first surveyed on the 26th February, 1802, by Matthew Flinders,

R.N., commander of H.M.S. Investigator, the discoverer of the country now called South Australia, was set apart on 12th January, 1841, with the sanction of Lieutenant-Colonel Gawler, K.H., then Governor of the colony; and in the first year of the Government of Captain G. Grey, adorned with this monument to the perpetual memory of the illustrious navigator, his honored commander, by John Franklin, Captain R.N., K.C.H., K.R., Lieutenant-Governor of Van Diemen's Land."*

Judging from Flinders's journals and from what I have heard of the man, he was a fine type of the British sailor, independent, strong willed, humorous, observant, with self-knowledge, energetic, known among his mates as "the indefatigable," and, above all, with a noble view of his mission in life as a scientific discoverer. He was a hero, like Ulysses of old, "That ever with a frolic welcome took the thunder and the sunshine." He would have said, with his forerunner, Dampier: "This satisfaction I am sure of having—that the things themselves in the discovery of which I have been employed are most worthy of my diligent search and enquiry, being the various and wonderful works of God in different parts of the world; and however unfit a person I may be in other respects to have undertaken that task, yet at least I have given a faithful account, and have found some things undiscovered by any before, and which may at least be some assistance and direction to better qualified persons who shall come after me."

Flinders died on the very day that his great "Voyage to Terra Australis" was published. With the help of Mr. Simpson Newland, Mr. Kyffin Thomas, and of that thorough scholar and true gentleman, Professor Morris, of Melbourne, whose recent death I deeply deplore, I had the honor of writing this rock inscription. All thanks are due to Mr. Owen Smyth for his share in the work. But if I had had to make Flinders's epitaph I should have written:

Strong in will

To strive, to seek, to find, and not to yield.

adding his own words—almost his last—"I know that in future days of exploration my spirit will rise from the dead, and follow the exploring ships."

Who knows whether his spirit may not be among us here to-day

MR. NEWLAND'S ADDRESS.

Mr. Newland said: The South Australian Branch of the Royal Geographical Society long since determined that some recognition of Matthew Flinders's great services, some fitting

* See photograph of original tablet in Plate ii.

tribute to his memory, should be erected on his centenary, in this district. It was felt that the memorable meeting in this bay of the rival British and French exploring expeditions deserved commemorating. After mature consideration it was decided to cut an inscription on one of the rocks on the summit of the Bluff, perhaps the most remarkable feature of this coast. I was deputed, with Mr. Reed, to choose a rock. We selected the one before us on which the plate is fixed. It is by no means the largest to be found, but possesses the advantage of being upon the very summit of the Bluff, and directly overlooks the place where Flinders and Baudin met. Later Mr. R. Kyffin Thomas and Mr. Owen Smyth (who had been appointed to cut the inscription) accompanied me to make the final inspection, when the original choice was confirmed. Mr. Smyth, however, to my great regret, declared that all the rocks on the spot were of too coarse a nature to admit of safe cutting of letters on them. Hence we were reluctantly compelled to abandon that idea, and adopt what was considered next best, a gun-metal plate. The Government have liberally consented to defray half the cost and affix the plate, the Geographical Society being responsible for the remainder. The Geographical Society has welcomed with interest the celebration of the Flinders centenary at Port Lincoln, and the enthusiasm there shown by the inhabitants in honoring the memory of the great seaman who discovered their noble harbor. Also the erection of a column to Flinders on Kangaroo Island by the people of that place, a grateful and appropriate recognition of the services rendered by him to that part of Australia. The Franklin memorial to Flinders at Port Lincoln, the newly raised column and tablet on Mount Lofty duly named and unveiled by His Excellency the Governor on March 22, and the plate we uncover to-day will form a fair tribute on our coastline to the fame of the man who explored it. (Hear, hear.) It is interesting to note on such an occasion as this that the Governor of the State, Lord Tennyson, is a relative of both Sir John Franklin and Flinders. (Hear, hear.) Just 100 years ago to-day the aborigines of this part of South Australia, thronging the shores of the bay, probably from the summit of this Bluff, must have seen—to them—a novel and awe-inspiring sight—the approach of two strange monsters, one from the west, and another from the east. That from the west was H.B.M. exploring ship Investigator, our illustrious Matthew Flinders commander; that from the east the French exploring ship Le Geographe, Nicolas Baudin, of scarcely less fame, commander; the one

flying the grandest flag of the grandest nation on earth—the flag of Great Britain—the other, the flag of Imperial France, then under the rule of the great Napoleon, disputing the sovereignty of the sea with us. They met in hostile array, with decks cleared for action and cannon loaded. Flinders says: “We veered round as *Le Geographe* was passing, so as to keep our broadside to her, lest the flag of truce should be a deception; and having come to the wind on the other tack a boat was hoisted out, and I went on board the French ship, which had also hove to.” Thus, by a cool and wise discretion, the calamity of bloodshed was averted. It would, indeed, have been deplorable if the first great incident in the history of our State—the memorable meeting of two famous ships and more famous captains—engaged in peaceful exploration, had been tinged with blood. We are proud to know that cordial relations were established; that Flinders went on board his rival’s vessel; that he told of his discoveries; how he had sailed round Australia; how he found and named the splendid harbor of Port Lincoln, where the first calamity of his voyage had befallen him, and he had lost a boat’s crew of eight men; how he had discovered, named, and surveyed Spencer’s Gulf, Investigator Straits, and St. Vincent’s Gulf; also Kangaroo Island, with a host of smaller islands; Cape Jervis, Cape Willoughby, Mount Lofty, Backstairs Passage, and the Pages. The French captain also told of his discoveries to the east and the names he had given to many bays and capes which yet attest them. He, too, had lost a boat’s crew, and it is pleasant to know that the great seamen parted with the mutual humane pledge that each would do all he could to save or solve the fate of the lost men. In memory of that meeting our glorious countryman named this wide stretch of water Encounter Bay. In all the long stretching shores of that bay there can be no more imposing, striking object than this Bluff. Hence it has been selected as the fitting spot on which to place a tablet to the memory of its discoverer. I cannot but lament that Flinders did not spend more time in these waters. He would then have discovered the mouth of Australia’s great river; but he passed, unwitting of the great prize, to finish his task—to leave the *Investigator* a condemned hulk in Sydney Harbor; and in his eagerness to again meet his long-left bride he sailed for home in the *Cumberland*, a 30-ton schooner. Calling at Mauritius, then a French colony, he was detained a prisoner for six years. For years neglected and almost forgotten, his work has since been fully recognised and will live for ever. His surveys are models of accuracy. He paved the way for

thousands to follow and find happy, prosperous homes. He was one of the pioneers of empire, and if he lived to-day he could proudly point to such results as few have achieved. Twenty-eight years passed away when the wondering aborigines again beheld a craft, this time scarcely bigger than one of their bark canoes, approaching from the north down the great River Murray. It was Charles Sturt with his boat's crew of soldiers and convicts; Charles Sturt, the greatest of our many great land explorers, to whom Australia owes a debt perhaps greater than she does to any other man. He pressed on, with the thunder of the breakers of the Southern Ocean in his ears, till he pitched his camp almost on the site of Goolwa, and on February 12, 1830, with MacLeay, his second in command, and Fraser, stood at the Murray mouth, the first white men to behold it. The problem where the great river system emptied into the sea was solved, and solved by a man who may well claim immortality on the land, as Flinders on the sea. Sturt stayed no longer than Flinders. With scarcely three weeks' provisions, he was compelled to face that long, weary current with his band of much-enduring, indomitable heroes, and he succeeded, as we know, without the loss of a life. The next, about a year after Sturt, who visited Encounter Bay, was Captain Collet Barker. He was the first to ascend Mount Lofty, and left his name to Mount Barker, and Barker's Knoll, now swept away, but once the landmark of the Murray mouth. At its base he lost his life at the hands of the fierce aboriginal savages of the Coorong, long known as a ruthless, bloodthirsty tribe; witness their massacre of the whole crew and passengers, men, women, and children of the wrecked brig Maria. It must not be supposed that, though named after him, Barker discovered Mount Barker. Sturt really did that on his way down the Murray, but believed it to be the Mount Lofty of Flinders. Sturt and Barker were both soldiers and officers in the same regiment, the famous 39th, of the Peninsular War. In April, 1837, Captain Crozier, in command of H.M. brig Victor, was anchored under Granite Island. He surveyed much of the bay, and gave the name of his ship to Victor Harbour and his own to Crozier's Hill. He also called the Bluff Cape Victor, but it has not caught on. This is the Captain Francis Rawdon Maira Crozier of arctic fame. He was second in command to Sir James Clark Ross in his celebrated antarctic expedition with the Erebus and Terror, and later accompanied Sir John Franklin (whose name appears on this plate) as commander of the Terror in his gallant but ill-fated expedition in search of the North-West Passage, when every soul perished. Another arctic hero was Captain Pullen, afterwards

Admiral Pullen. The island at Port Elliot was named after him, also several channels near the Murray mouth. He spent some time in surveying that locality, during which he sailed the cutter *Waterwitch* through the mouth. Then came the whalers, more than thirty years after Flinders, after Sturt and Barker, yet the first settlers to follow him. Lawless, bold, and untamable as our old Viking ancestors, they built their own boats and launched them in all weather in pursuit of the greatest and most formidable of all creatures. Their huts and melting pots lay beneath the banks we passed as we came. Their signal station and flagstaff were on the summit of this Bluff. Preceding the first permanent land settlers they—a nomadic class—by plying their dangerous avocation, established what was for years the most important industry of the new colony. In the Congregational Church at Port Victor there is a tablet on which is traced these words: "Sacred to the memory of Ridgway William Newland, the Pioneer Pastor of the South." Never were truer, more appropriate, words written on stone. He led a band of some thirty souls from the comforts and luxuries of Old England to the privations and savagery of unknown Australia; landing June 20, 1839, on the shores of this bay, where the town of Port Victor stands, from the *Lord Hobart* anchored under Granite Island. Of that band few now survive. Are there any here to-day except myself? When they first pressed this soil the country was practically as beautiful, as virgin, as when Flinders beheld it. Then these hills and valleys were clothed with noble forest trees and shrubs right to the water's edge. Granite Island was covered, as was this Bluff, on its sheltered side, almost to where we stand. Beautiful as the district still is. I cannot but regret that our civilization has done so much to mar it. Gone are the forest giants, gone most of the shrubs, gone the prolific bird life. Yet who can look around and not feel the charm of those distant hills and valleys at such a coast as this, with these islands and breakers and the glorious bay that once bore the ships of Flinders and Baudin and their companions, and feel no emotion? I am proud to think that my name is associated with the district, that by pen and platform and in the halls of the Legislature, I have done something to proclaim its beauties and advantages and advance its interests. No part of the State can be richer in interesting incident, and as time rolls on, each historical, each romantic or tragical event will become more interesting still. And among these the memorial we unveil to-day to the memory of immortal Flinders will be remembered and treasured, adding a deeper interest to Encounter Bay and to the magnificent Bluff

upon which it is placed. From this spot we see spread before us the scenes of many of the most interesting, romantic, and tragical incidents with which the district abounds. The meeting place of Flinders and Baudin, the spot where Sturt reached the Southern Ocean and discovered the Murray mouth, where Barker met his tragic fate, and later, our first Judge, Sir John Jeffcott, Blenkinsop, and many others, have given up their lives. Away to the east we can see the coast where the Maria's band were murdered by the same tribe that slaughtered Barker. Immediately below us was the battleground of the aboriginal warriors—there they appeared in all the pride of their rude panoply of war. Near the same place I have witnessed, and it is indelibly imprinted on my memory, the gruesome aboriginal rite of roasting the dead, an honor only paid to distinguished individuals. A noted warrior had died, and was placed in a sitting position over a slow fire, the men grouped around attending to the due performance of the function in all its horrible details, the women further back and scarcely seen in the flickering firelight, kept up a monotonous lament. Could there be a more striking subject for an artist? The wild, Australian scene, the nude savage forms circled round that ghastly central object—I venture to think it is worthy of the brush of a Dorè. The shadows of the Black Swamp long hid the pathetic fate of the lost girl in the early days. There, in her self-made, wretched wurley, she lingered till death came, her fate unknown till years had passed, and the cattle hunter found her mouldering bones and her Prayer Book, with her last words written in it. Often on the summit of this Bluff I listened to the "lookout's" tales of the old whalers. How all the blacks to the west of the lakes and river were to be trusted, but along the Coorong to the Tatiara they were a bloodthirsty race. How Yorky raced round the shores of this bay in his ride for liberty and life, swimming with his horse the terrible Murray mouth. How the whalers hid him from justice beneath this cliff, and later on West Island, whence he eventually escaped in an American whaler. From this summit I have seen many whales killed, two in the bay between the Bluff and West Island; a wonderfully exciting sight, such as few men now have an opportunity of observing. There have been few more interesting events in the history of Encounter Bay, and, indeed, of the State, than the arrival of the Lady Augusta from Sydney, with the expressed object of steaming through the Murray mouth, up the river itself, and ultimately its tributaries, and thus prove the navigability of both the mouth and the river. Up to that

time nothing larger than an occasional whaleboat (excepting Pullen's Waterwitch) had ever passed in. I can well remember the excitement in the district and the eager watch kept for her. It was generally known that if she was suitable enough to navigate the smooth shallow waters of the lakes and rivers she was totally unfitted for the open seas of the Australian coast, especially during the rough weather of winter seasons, seeing that she only drew three feet of water when loaded, and that her round house and deck cabins seemed built to catch every wind. The Lady Augusta was purchased by Captain Francis Cadell for the River Murray Navigation Company, of which he was a member, for the purpose of claiming the bonus of £4,000 offered by the South Australian Government for the first steamer navigating the River Murray. On the morning of August 13, 1853, she was sighted off the Bluff, a strange and ugly object, with her deck hamper, to eyes then unaccustomed to river steamers, when she slowly steamed into Port Victor, where she lay for three days. It was a daring feat to bring such a vessel some eleven hundred miles along the stormy Australian coast, and Captain Davidson, who bravely undertook and achieved the task, must have been a bold man indeed. A less sustained but even more daring deed yet remained, to steam her through the always terrible, but far more terrible then, because less known, Murray mouth. This, too, was safely accomplished by hearts as brave as brought her round from Sydney. On July 16 the weather was favorable, and the first steamer to float upon its waters was triumphantly taken through the Murray mouth by Captain Cadell in person, and a few days later started on her adventurous voyage up the great river.

Lord Tennyson then pulled away the Union Jack covering the tablet, and hearty cheers were given.

Alderman C. Tucker proposed a hearty vote of thanks to His Excellency the Governor for his courtesy in performing the historical ceremony at a time when his health was not what they might all desire. He referred to Lord Tennyson's willing readiness to undertake these interesting public duties, and said that the placing of the tablet on the Bluff would help to preserve the memories of Flinders and Franklin and the Governor for many years to come.

The vote of thanks was carried, and a band of pioneers of the district having been introduced to His Excellency, the proceedings ended with cheers for the King, Lord and Lady Tennyson, the Geographical Society, and Mr. Newland.—
"Register," April 9, 1902.

Historical Records of South Australia.

Out of the many replies we have received in response to the request of the Council, we insert extracts from five diaries of our early colonists—one from Mrs. Helen Mantegani, which give us a life-drawn picture of a South Australian domestic circle in the dawn of our history, and under the primitive conditions which prevailed at that early period.

The "Early Reminiscences of South Australia," by the late Dr. Everard, will recall to memory the name of one of the best known and most highly respected families who first came to the country. The doctor's narrative of what he and his brothers did in forming their future home is a modest and characteristic relation worthy of the writer.

"Recollections of Hindmarsh," by Mr. R. C. Mitton, is of special interest, as handing down to us the names of some of the best known of the very early settlers in connection with the peculiar mode of survey and disposing of the allotments of one of the first townships.

The Diary of the late Charles Bonney, once Commissioner of Crown Lands, and an early and respected colonist of the type of which we are most proud, deals with special features of Australian life in the interior, but none the less interesting on that account. The forming of stations, but more especially the droving of large herds of stock from New South Wales and Victoria to South Australia, which he so graphically relates, were bold and adventurous feats when the aborigines were hostile and the character of the country generally unknown.

Following this is a paper by Mr. Wm. Flavel, of Kapunda, entitled "A Few Scraps of Recollections," embracing early and varied experiences of colonial life, shepherding, &c., and disclosing the many privations to which the early settlers were exposed.

Recollections of the Early Days of South Australia from 1836.

BY MRS. HELEN MANTEGANI.

I landed with my parents, Mr. and Mrs. Robert Thomas, of "The Register," in South Australia in the middle of November, 1836, at Holdfast Bay, so named by Colonel Light on account of the survey ship's anchor holding fast during a storm. The plains round the Bay were covered with beautiful green grass, at least 4 or 5 ft. high. There were then tall and stately gum-trees on all sides, lifting their giant heads, and giving a grateful shade. Every one pitched his tent under them for shelter from the burning sun, and there was plenty of choice. One group of very fine gums I especially remember round Mr. Gouger's tent (he was then Colonial Secretary), for under those trees the proclamation of the colony of South Australia was read by Captain John Hindmarsh, the Governor, and on one of those trees the proclamation was nailed. My father and mother were both present on that occasion with other colonists, and saw it done, and I was present throughout the day. Unfortunately many of the early settlers foolishly and ruthlessly cut many of the finest trees down, and undoubtedly the proclamation gum-tree shared that fate. It is a great pity that such a memorial had not been spared, but settlers in those days did not think of providing future historic monuments.

LAGOONS.

A little way inland were several large lagoons, formed probably from the overflow of the Sturt River, which was not far off. They were covered with tall reeds, and splendid flooded gums grew on their margins, which were very swampy for a considerable distance. One of them was very lovely, just like a miniature lake, bordered by trees and reeds, and in its centre the bright water was the resort of wildfowl, making a beautiful picture. My sister and I made an exploring expedition, and walked round it as soon as the margin was sufficiently dry to venture, when we only got our feet wet. It was subsequently known as Hack's Lagoon, as Mr. J. B. Hack had his camp there. I do not know if the lagoons are still in existence or dried up from the trees and reeds being cut down.

FLOWERS AND FRUITS.

Beautiful flowers and shrubs grew on the small sandy hills not far from the shore. The "Everlasting" was very plentiful; it was the yellow kind that smells like new-mown hay. We gathered great quantities, and strewed the earthen floor of the tent with it, making a fragrant carpet.

Of fruits, the *Mesembryanthemum*, or ground fig as it is sometimes called, grew in abundance, which, when ripe, was very nice, and allayed our thirst when my sister and I were wandering about in the hot sun. On the sandhills close to the shore we found little cranberries, and gathered quantities of them and made them into pies. They are very good, and the fruit is something like a very small apple. I do not remember any other fruits growing there at that time.

BIRDS.

The beautiful yellow-crested cockatoo was abundant, and I have seen a great gum-tree white with them. They were not frightened of us at first, as they would simply raise their crests and screech, but after people shot at them they got timid. We also saw the handsome black macaw occasionally, the one with yellow under the wings and tail; but the handsomest of all was the black one with vivid scarlet under wings and a broad band across the tail. They were, however, rare. And numbers also of parrots of every kind, large and small, and colors of every hue, too. I am sorry to say we had to use them for food for a time, as we had no fresh provisions, one of the dishes on our first Christmas Day's dinner being parrot pie. There were also pretty little robins, which used to hop about quite tame, and a little useful black-and-white bird with a long tail, which we called a fly-catcher, as it lived upon flies, and a terrible pest the flies and mosquitoes were, as they almost devoured you. There was a bird—I do not know its name—but it was an adept at mocking others. One of the settlers brought some guinea-fowls from Rio Janeiro, whose call is like "Kopec," and these mocking birds imitated the call exactly, and we could hear them everywhere saying "Kopec, Kopec." Some said jokingly, "They are telling us to go back." They also imitated a cock's crowing. Plenty of quail were also seen in the autumn on the Glenelg plains.

I wish here to record my abhorrence of the reckless slaughter of beautiful and harmless birds both in past days and in the present, either for adornment or so-called sport. Too often:

when people go out for a holiday they want to kill something, forgetting that

“Mischief’s wrought for want of thought.
As well as want of heart.”

I feel sure that many of the insect pests have greatly increased from so many birds being destroyed or driven away.

REPTILES.

It was rather curious that we did not see any snakes. My sister and I used to wander about the sandhills and lagoons for hours, but very fortunately for us we never saw a snake. Lizards we saw in plenty, and occasionally an iguana some 2 or 3 ft. long. They are quite harmless. Numbers of the kind called sleepy lizards were basking in the sun. They are funny-looking things about 7 or 8 in. long, and, as far as I remember, a stumpy head and tail so much alike you cannot tell which is which until you touch them, when they open their mouths wide. Although we did not come across any snakes others did, and Mr. Williams killed a big black one near his tent and cooked and eat it!

Of animals there were plenty of opossums, kangaroos, and kangaroo rats, not like the common rat, but pretty little things, after the kangaroo pattern. They used to run about the floors of our tent and over the beds sometimes at night, too. They were not frightened a bit. The kangaroo mouse also is a beautiful little creature.

INSECTS.

I used to take a great interest in curious insects, and collected several cases of them in my young days. Mr. J. M. Skipper sent two cases home to his friends at Norwich which I had collected and arranged, and they were placed in the Museum there. Among the largest and most curious insects is the one called the animated leaf. When beside a gum leaf you can hardly tell the one from the other, being the same-colored green on the body and outside of the wings; but when the wings are spread the under part is a lovely rose color, which you often see in a partially faded gum leaf. The animated twig is another curious insect, several inches in length, very narrow, just like a small twig or stalk of a gum-tree. There is another queer insect people call the praying mantis, because it sits up and puts its forelegs together, then gently sways them backwards and forwards as if praying very devoutly, in the most comical manner possible. All these, I believe, belong to the Mantis species.

THE NATIVES.

It was about three weeks after we arrived that we saw the natives for the first time. They had seen us, we afterwards learnt, but kept in hiding. One day Mr. Williams came upon a man and a boy and brought them to the encampment. A little while after that, as they found they were not molested, the women and children came also. They were given food and clothing, and encamped not far from our settlement. On one occasion they did us a good turn. The surveyors used to set fire to the long grass, and several times the fire came dangerously near our tents, when the natives helped us put it out by treading it with their bare feet. I once saw a native making fire. It was very ingenious as he did it. He had a stick sharply pointed at one end and another with a hole in the centre; then he inserted the sharp point of the other stick into the hole and whirled round between his hands very rapidly for a long time, until the hole in the stick was filled with a fine powder. Then he took little bits of dry bark and leaves and laid on it, when they caught fire, and then more was put on till there was a blaze.

THE OLD GUM-TREE.

By some strange misconception this tree has acquired a celebrity that is not justified by fact. That it is not the tree on which the proclamation was nailed is quite certain, as the real tree was, as I before stated, one of a number close to Mr. Gouger's tent, which was much nearer the shore. It was a remarkable tree, and when we came was in the form of an arch, which my father, Mr. Thomas, named "Temple Bar." My sister and I used to play under it, and I saw it about every day for the seven months we were at the Bay, so I think I am an authority on the vexed subject of its identity. Whoever started the idea of its being the proclamation tree could not be one of the oldest colonists, as they would have known better.

Its true historic value lies in the fact that it is very near where the reed hut stood where the first printing was done by Mr. Thomas (the Government Printer), who printed the proclamations of the colony of South Australia and other documents in the reed hut I mentioned. Our tents were close by as well. Mr. Thomas was as well acquainted with the tree as myself.

THE TORRENS.

The River Torrens as I first saw it in the winter of 1837 was very pretty and picturesque; high and steep banks either

side, closely covered with beautiful shrubs of all sorts; splendid gum-trees also were growing on the banks, and in the stream, overhanging the water, which was narrow and deep, small fish were plentiful, and that strange creature, the platypus, was occasionally seen on its banks. But some stupid people cut away the shrubs and trees that held the banks together. Consequently the soft alluvial soil fell away, and the river became broad and shallow and very ugly. After this the winter floods carried away the banks that remained, making it a most unsightly spot for many years, and entailing an enormous expense to restore it to anything like beauty, though it will never be as picturesque as Nature made it. By-the-way, the discovery of the River Torrens belongs to Mr. Kingston's dog, who was out with his master when surveying, and, being thirsty, smelt the water and showed the way to the river. Mr. G. S. Kingston (afterwards Sir George) was Deputy Surveyor-General at that time.

PORT ADELAIDE.

On October 13, 1840, the formal opening of the McLaren Wharf at the South Australian Company's Basin, Port Adelaide, took place, and it was then named after Mr. McLaren, the manager for the company. It was a grand affair for those days, and no expense was spared to make it a success.

Mr. McLaren invited all the principal colonists to the opening ceremony at the Port, which was performed by His Excellency Governor Gawler. A splendid banquet was provided, over which the Governor presided, in the new warehouse built for the company. Loyal toasts were drunk, and also success to the company's enterprise, and much speechifying was indulged in. I was present at the ceremony with other members of my family, but it was a very trying day—hot wind and dust in plenty. Carriages of every kind were provided for the guests, but on returning late in the afternoon a terrific thunderstorm came on, with torrents of rain, to the great discomfort of those who had open vehicles, and to the spoiling of the dresses of the ladies. However, it was a great success, and marked an important era in the history of the colony.

Once in the early days I was staying at Glenelg. There had been a high tide, and the sea on receding washed away the sand from the beach, laying bare for some distance great trunks of trees, buried in broken shells and hard sand. The trees were lying down flat, very close together, and much worn and honeycombed. The next tide covered them, and I saw

them no more. And it has often made me wonder how those trees came there, where they came from, and at what period they got buried so close to the sea; and I would much like the opinion of a geologist on the subject. The part of the beach where I saw them was what is now called St. Leonards.

One of the sights I remember the first year we were in Adelaide was a kangaroo hunt down Hindley-street. It seems very funny to think of it now, but there were then only a few houses scattered about, and a little further back it was all bush, so thick that sometimes the wild dogs would come quite close and try to steal our fowls. I saw a plucky hen of our's fly at one that was trying to take her chickens, and drive him off.

In those early days every one could turn a hand to anything that was generally wanted. My mother once wanted an oven (as we had to make our own bread), so my brother, William Kyffin Thomas, a lad then of only fifteen, set to build one. He got a number of iron hoops (of which there were plenty from the barrels lying about), fastened them closely together to form the roof, and thickly plastered it inside and out with clay; and this, when dried, made an excellent oven. It was on the ground at the foot of a tree, and answered capitally, and was used for months. Sometimes neighbors would beg of my mother to let them bake in it, which she often did. Sir John Morphett fenced it in afterwards to preserve it, as it was on his land. On one occasion during the latter part of our residence at Glenelg, my mother being in Adelaide busy preparing for the publishing of "The Register" (it was the beginning of our first winter), we were getting rather short of provisions, and wanted to send to Adelaide for supplies. So two friends of ours—Mr. J. M. Skipper and Mr. Lyttleton Powys, kindly offered to walk to Adelaide to tell my father our wants. They did so and returned, Mr. Skipper carrying a leg of mutton in his hand and Mr. Powys having the capacious pocket of his shooting coat full of small loaves of bread. We were highly amused at the sight.

The first winter we spent here was a very wet and a very unpleasant one, as most of the settlers were in tents; and as the rain often came through we had sometimes to put up umbrellas as we lay in bed, and one very stormy night Mr. Brown's tent blew down, sheets, pillows, &c., being scattered in all directions. No one in this day can understand the hardships and trials that were so cheerfully borne by the pioneers

of the colony and the good work they did, of which the later generations reap the benefit.

One thing I wish particularly to mention. My mother soon after we arrived, desiring to send letters to England—there being no postal arrangements—made up a postbag for her own letters, and enclosed those of her friends in the bag, which she sealed up securely and addressed it to the General Post-Office, London. It arrived safely, and she received answers to her letters. A postbag was sent by the Government by the same vessel, but was, I believe, never heard of.

I will now conclude these recollections of the early days of the colony, trusting they may be of some little interest to Australians in later times.

It has given me much pleasure in recounting the experiences of my early youth, for I was only eleven years old when I arrived in the colony. But the novel and often strange experiences of that time were deeply impressed on my mind, and, being gifted with an excellent memory of events, I still recall them easily.

November 28, 1901.

Early Reminiscences of South Australia.

BY DR. EVERARD.

We landed at Kangaroo Island on November 3, 1836, which did not present anything remarkable to induce us to remain there. The whole island appears a vast thicket of rather small trees, with thick underwood of evergreens, many of which were exceedingly ornamental, but the soil was sandy and fresh water was to be found but in few places. The South Australian Company have, however, established a settlement there, at a beautiful Bay called Nepean, and have given the name of Kingscote to a town. We, however, lost two of our settlers there, who, with four more, attempted to cross the island. They were lost in the bush, and died, probably of thirst.

After staying four days at Kangaroo Island we proceeded to the spot which our chief surveyor indicated as the place probably of our future settlement, which was about seventy miles up St. Vincent's Gulf, and on November 9 we landed at Holdfast Bay, and pitched our tent about a mile from the beach, near some fine ponds of fresh water, abounding with wild ducks.

We were the first settlers, as those who had preceded us were the surveyors and their people, and some of the Company's, who founded the settlement at Kangaroo Island, where they had been about four months when we arrived. After pitching our tents and landing our goods, myself, my brother William, and our man proceeded to build a cottage, the one in which we now live, and a very comfortable one it is, I assure you. The framework is of small trees, the walls of slabs cut from the gum-trees, the roof of reeds, and the interior fittings of deal, which on boardship were our bed places; the floor of clay rammed hard to make it firm, and covered partly with India matting, partly by oilcloth. We then dug up a bit of ground for a garden, in which vegetables grow well. I had some delicious watermelons, some of 10 lb. weight, the seed of which I procured at the Cape. We occasionally shot ducks for dinner.

After a very long delay the site of the chief town was fixed, and we have been upon our town land about a month. It certainly is admirably chosen, and must eventually become a very prosperous city. It is situated upon two gentle slopes, with a river between of excellent water. Beautiful grassy

plains surround it, with a sufficiency of timber to make it look well. It is five miles from where our cottage is situated, which is now called Glenelg, and seven from the harbor, which is called Port Adelaide; but a canal is contemplated of six miles in length, which will bring merchandise from the Port to the city. They did not make the city at the Port on account of its marshy situation and its want of good water. I have ten acres in the town, five of which were mine by priority of choice; the remainder I bought at public sale, and the average price was £6 per acre. I would not sell one of my first five for less than £200.

I am now, with William's assistance only, felling and grubbing up the trees upon one acre preparatory to building my town house. I have lost my laborer. He would not work for me longer, although I had agreed to give him 12/ per week; but he could earn more, he said, and if I did not choose to advance him he would leave me, and he accordingly did so. In England he did not earn on an average more than 6/ per week, and did not taste meat from one week's end to the other, but here he got meat every day, and less than a bottle of rum per day was not enough for him. Honest, sober, industrious laborers are much wanted here. They would very much better their condition, and would soon become independent. Therefore, William and I are obliged to work hard; but we enjoy it, as we know it is all for our own comfort and prosperity. The Governor would have appointed me to the Magistracy if I could have made up my mind to live at Kangaroo Island, and I should have had £100 per annum; but I declined, as I liked this place too well to leave it altogether. His Excellency has given one entertainment since he has been here—a ball and supper—to which we were invited, and it passed off very agreeably.

The country, soil, and climate exceed my most sanguine expectations, and I would not return to live in England on any account. This is near our shortest day, and the days are like English summer. Thermometer, 65 deg.; at night, from 56 deg. to 60 deg. The greatest heat of summer has been 110 deg. in the shade, but very endurable on account of the fine land and sea breezes. . . . Pigeons, black and white cockatoes, and parakeets of most charming plumage and great variety—all of these birds, as also quail, were to be met with in abundance. The quail are most delicate eating. James at present is our only sportsman, and an excellent shot he is. rarely failing to bring down his bird, and it would have

amused you to have seen him, with his gun and a naked native boy on each side of him, showing him the game. Apropos of the natives, they are far from numerous, and on the most friendly terms with us, doing us any kind office they can, such as fetching wood and water, and are very grateful for anything we give them, and very fond of biscuit.

Recollections of Hindmarsh.

By R. C. MITTON.

The section on which Hindmarsh is laid out was the property of the first Governor of South Australia, Captain (afterwards Admiral) Sir John Hindmarsh.

In 1838 a meeting was called by advertisement, when it was resolved to purchase the section for £1,000, and to have it surveyed for a township in half-acre blocks, the lots to be balloted for, no one to have more than one allotment.

The cash was paid, and it was duly conveyed to two trustees, namely, George Milner Stephen and Arthur FydeLL Lindsay, the latter being appointed to survey it into two hundred half-acre blocks. The balance of the land was put into street reserves.

After the survey was finished and the ballot taken, Mr. Lindsay went round and delivered the deed, with a spadeful of earth to each proprietor, as he took possession of the lot.

Many of the buyers had the deeds made out in their children's names. The cost of each allotment, including land, deed, surveying, and Mrs. Hindmarsh's dower, which was 1/ per allotment, was £6/12/6.

I may here mention one circumstance in connection with the land which I think is unique in the history of the colony. On one section leased and farmed by Mr. E. J. Crawford in one season, when flour was very scarce and dear, Mr. Crawford came to my brother and myself, and asked if we wanted some new flour, as he was going to cut some wheat. He then put it in the malt kiln to dry, ground it into flour, and we made it into bread, and delivered it the next morning! So that it was growing one morning, and delivered the next as bread, and I think that is an unbroken record.

On the death of the Admiral, his daughter, Miss Cator, had it laid out as a township, and called it West Hindmarsh. This was in 1880. The remaining part of the section, from the Grange-road to the River Torrens, was laid out some years after, one part being called Hindmarsh West and the other New Hindmarsh. Her agent gave a donation towards the building of Taylor's Bridge, and also to the Institute.

BOWDEN.

The section on which Bowden stands was the property of Mr. (afterwards Sir) J. H. Fisher. It was surveyed some time

later than Hindmarsh, and sold privately by Mr. Fisher, who named it after his native village in Northamptonshire.

The long street through the centre was called Gibson-street after Mr. James Gibson, one of the settlers.

DISTRICT COUNCILS.

Hindmarsh was one of the first to adopt the District Council, being proclaimed a district on June 2, 1853. The first Councillors were Messrs. Thomas Magarey, James Gibson, John Ready, John Packham, and Mr. (afterwards Sir) R. R. Torrens, author of the Real Property Act. The public did not take kindly to the rate-paying, so that a public meeting was called, when they passed a rate, under an amended Act, giving the Council power to levy a rate up to 1/ in the pound. One Chairman, Mr. E. J. F. Crawford, during his term of office opened a road to the Grange, for until then, in order to get to the sea, one had to drive down the Port-road as far as the Halfway House.

Hindmarsh was well supplied with churches. The first place erected for public worship was the building in Lindsay's Circus, and was open to all denominations. The Rev. Mr. Howard, the first Church of England clergyman in the colony, often held services in it; also the Rev. T. Q. Stow, the first Congregational minister in South Australia.

Mr. Playford (father of the Hon. Thomas Playford) also frequently occupied the pulpit in this building. He was an old Waterloo veteran, and being a very big man, during the last few years of his service in Lindsay Circus, he used to sit down to preach. The building supplied a twofold need in being used for religious services on Sunday and as a sort of Town Hall, in which to hold public meetings, during the week. For many years it was the only schoolhouse in the town, and the Rev. J. Prior kept school there for some time, and was succeeded by Mr. Alexander Moody, the biggest man in the colony, weighing 21 stone.

Autobiographical Notes.

BY CHARLES BONNEY.

I was born on October 31, 1813, and lived for the first twelve years of my life at Sandon, a little village near Stafford, in the valley of the Trent, of which my father, the Rev. George Bonney, was vicar. My mother was the youngest daughter of the Rev. John Knight, vicar of the adjoining parish of Millswich.

I had just attained the age of thirteen when my father died, and our home was broken up.

After leaving Sandon I went to reside with my brother Thomas, who was a clergyman, and had recently been elected head master of a grammar school at Rugeley, ten miles from Sandon. I remained there for seven years, when, having received an appointment as clerk to a judge in Sydney, I left England on August 5, 1834, in a vessel called the "John Craig."

We arrived in Sydney on December 12, 1834, the voyage having occupied more than eighteen weeks.

After remaining eighteen months in Sydney I accompanied my friend, the late Mr. C. H. Ebdon, to his station on the Murray, where Albury now stands, a distance of 400 miles from Sydney. This was my first experience of bush life.

On the journey we had a good deal of talk about the then new settlement of Port Phillip, which was exciting some attention in Sydney in consequence of some Tasmanian settlers having taken stock over there, and claimed a right to the land as first occupiers. The Sydney Government had sent a police magistrate there about the time we left Sydney, July, 1836.

Mr. Ebdon expressed a desire to send sheep overland to the new settlement, and asked me if I would undertake to explore a road across the intervening country. I eagerly embraced the proposal, and before I had been a week at the station I found myself at the head of an exploring party, consisting of two of the station hands and myself. I selected as my crossing-place the point where Albury now stands. I thought then that I was the first to cross the river at that point, but the name of Hamilton Hume was afterwards found cut upon a tree there, showing that he had crossed the river at the same point on his celebrated journey to Port Philip some years previously. I took a direct south-west course across the

ranges, and struck the Ovens some few miles above the point where the main road now crosses it.

The winter of 1836 had been excessively wet, and the river, being then bank high, I was unable to cross it.

Following the river down in the hope of finding a place where I could effect my object I came upon a newly made dray track of Major Mitchell's exploring party, and as I had given up all expectations of being able to cross the Ovens in its flooded state, I hastened after Major Mitchell's party in the hope of overtaking it, and gaining some information about the country between the Ovens and Port Philip. The track led me to a point on the Murray now called Howlong, twenty miles below the station from which I had started. The party had crossed the river and proceeded on their journey, and, as I could not cross without the assistance of a boat, I had to return to the station.

As shearing time was coming on I could not renew my attempts to cross the country for some weeks; but on December 25 I again made a start, having with me this time a bullock dray and a good supply of provisions. I proceeded by the same route as before to Mitchell's crossing-place over the Ovens, and then followed his track for several days, when, finding it taking me too much to the westward I took a more southerly course until I struck the Goulburn. Here I halted until, as previously arranged, Mr. Ebden, following my track, joined me.

Leaving the dray encamped on the Goulburn, Mr. Ebden and I set out in search of the Port Philip settlement, which we reached on the third day, having made nearly a straight course, being guided for the last few miles by a dray track which we came upon. It was about January 7, 1837, when we arrived at the settlement, which consisted of a few tents with one newly-erected weatherboard store, conspicuous, by its fresh coat of paint, amongst the ruder habitations by which it was surrounded.

Mr. Ebden determined to bring a large number of his sheep over to the Port Phillip country, and I undertook to conduct the party. But, wishing to return to Sydney before fulfilling his engagement, I went across to Launceston, there being very seldom any direct communication between Port Phillip and Sydney at that time. I had to wait at Launceston three weeks before I could get a passage to Sydney, there being so little trade between any of the Australian ports.

On landing from the vessel at Launceston, and going in

search of an hotel, thinking I was an utter stranger in the place, to my astonishment I met a gentleman whom I had known in Sydney, and who afterwards resided in South Australia, the late Samuel Smart. He very kindly took me to an hotel, and paid me great attention during my stay in Launceston. On this occasion I first met the late Captain Hart, who was then commander of a vessel loading with sheep for South Australia. During my stay Sir John Franklin, who had recently been appointed Governor of Tasmania, paid his first visit to Launceston, and was most enthusiastically received. The former Governor (Colonel Arthur), having been very unpopular, this public demonstration seemed to me to be intended to mark by contrast the different feeling with which the two Governors were regarded.

I got a passage to Sydney in a small schooner and proceeded again to Mr. Ebdens station, and, in the month of March, started with 10,000 sheep for the Port Phillip district. These were the first sheep taken across to the new settlement.

Having crossed the Goulburn the sheep were halted on some open country, where Mr. Ebdens first intended to place them, and as we were in want of provisions I had to proceed to the settlement with two drays for the purpose of bringing up supplies.

The day before my intended departure I received intelligence that there was a party with cattle about a day's journey behind me, under the leadership of the late George Hamilton, Commissioner of Police, afterwards so well known in South Australia, and that there were two bushrangers hovering about the party, who would probably attempt to rob either that party or mine. In company with one of Mr. Hamilton's overseers I spent an afternoon in searching the country round about in the endeavor to find the bushrangers, but, not succeeding, I had to start the next morning with the drays for the settlement.

On this journey I made the track which afterwards became known as the Sydney-road, and I also discovered at the same time the fertile district afterwards named Kilmore, where I formed a sheep station.

On my return from the settlement the first news that greeted me was that the two bushrangers, accompanied by one of Mr. Hamilton's men, had visited my camp and induced six of my men to abscond with them. The story of these bushrangers has been so well related by George Hamilton in a little brochure which he printed some years ago that I only refer to

that portion of it in which I was more immediately concerned. I heard nothing of the absconders for some weeks, when one day, returning to my camp in the evening, after being out on the run, I learned that two of the absconders, named Dignum and Commerford, had visited the camp during my absence and taken away with them as much provisions, &c., as they could carry, amongst other things, a favorite little gun, which had been made especially for my father, when, from the growing infirmities of age, he was unable to carry his double-barrelled fowling-piece. Whilst the bushrangers were robbing the camp the tent-keeper asked them what had become of the other seven men who went away with them, to which they replied, in an evasive manner, that they did not know.

After the robbery they proceeded along the overland track towards the Murray, and the next heard of them was that, on arriving at the Murray, Commerford gave himself up to the police, then stationed there, and confessed that he and Dignum had murdered their seven companions in the district of Portland Bay, to which they had gone after absconding, and burnt their bodies. They were then taken to Sydney, and Commerford was afterwards sent round to Melbourne in order that he might be taken to the spot where the crime was committed, and point out any traces that might remain of the bodies of the murdered men.

He was sent in charge of two mounted troopers and a foot constable, and some charred remains of the victims having been found, they were on the return journey, when Commerford, whilst the two troopers were a short distance away preparing to encamp, seized the constable's musket, and shot him dead. He escaped pursuit, and the next heard of him was that he was making his way across to my station to attack me, but, calling at a hut on the way, the men at the hut, knowing who he was, and hoping to gain some reward for themselves, seized him, chained him to a dray, and took him to Port Phillip. He was then taken to Sydney, and tried and hanged for the murder of the constable. His companion, Dignum, remained in gaol, but as the only witness of the crime was now dead, he could not be tried for the murder, but a charge of horsestealing was preferred against him, and on being convicted of this crime, he was transported to Norfolk Island for life. Dignum was an old hand, and, according to his own account, had been guilty of all sorts of crimes, and had served sentences in almost all the penal establishments!

Commerford was a good-looking young fellow, and passed

himself off as a native of the colony, but in reality he was an escapee from a prison ship that was wrecked two or three years before near Jervis Bay.

What the motive of these men was in murdering their companions was never satisfactorily explained. Their own account of it was that the other seven, being Englishmen, intended to murder the two who were Irish, and the latter thought they would be beforehand with them and attack them whilst they were asleep. It is still more difficult to account for Commerford's conduct in giving himself up to the police in the first instance, and then committing the crime which led to his execution. He seems to have acted on impulse, and this was exemplified by his having on one occasion borrowed a brace of pistols from me to protect himself, as he said, from the blacks, and having within a day or two of his absconding returned the pistols to me without my having asked for them.

The sheep I had brought over, with the exception of two flocks that I had taken charge of, were removed to Mount Macedon, and with these two flocks, shortly after the robbery of my camp, I moved to Kilmore. There I remained with them till the end of the year 1837. Being the farthest outstation from the Port Phillip settlement, and there being no other station within a distance of nearly twenty miles I found the difficulty of managing the sheep so great, in consequence of the trouble I had in getting men, that I gave up the station and took the sheep to Mount Macedon.

At this time Mr. Joseph Hawdon was fitting out a party to take cattle overland to South Australia, and, stopping at my station, asked me to join the expedition. I eagerly embraced this opportunity of gratifying my love of exploring new country, and joined his party at Mitchell's crossing-place over the Goulburn. The course we determined to take was to follow down the Goulburn to the point where Mitchell on his homeward journey in 1836 had turned off in the direction of Portland Bay, and to follow his track until we came to the first of several rivers, which he had described as flowing to the westward. We hoped by this course to avoid much of the bad travelling country which, according to Sturt's account, the Murray flowed through, below the junction of the Murrumbidgee. Mitchell had described the junction of the Goulburn with the Murray as being several days journey to the westward of the point, where he turned to the south-west, and, therefore, he supposed that he had been travelling for

some days on the banks of the Goulburn. Accordingly we supposed that the Goulburn would take us in a north-west direction to the point where Mitchell left it; but we found it kept trending more and more to the north until, to our astonishment, we came to its junction with a large river, which we immediately recognised as the Murray. We did not know what to make of it at first. Here we were a hundred miles to the eastward of Mitchell's junction of the two rivers, and of which he had given an elaborate description. The only conclusion we could come to was that Mitchell had made some mistake, and we then proceeded along the banks of the Murray in a westerly direction.

Arriving at the point where Mitchell left the river, we followed his track across an extensive plain.

Some fifteen miles from the river was a conical hill, which Mitchell named Mount Hope, and from the summit of which he had seen in the distance a line of gum-trees, apparently marking the course of another river flowing to the westward. Mr. Hawdon and I ascended Mount Hope, from whence we saw the line of gum-trees described by Mitchell, but, instead of extending to the westward, it was quite apparent that they were running in a northerly direction, and would ultimately join the Murray not far from the point where we left it.

On arriving at the river, which Mitchell named the Yarrayne, we found it dried up to an insignificant chain of water-holes. We were bitterly disappointed at this result, and consulted together as to whether we should go on to one of the other rivers, which Mitchell described as having crossed farther on, or go back and follow the course of the Murray to our destination. I strongly advised that we should adopt the latter course, and place no more reliance on Mitchell's description of the country. This we did, and we followed the Yarrayne to its junction with the Murray, and there found Mitchell's track crossing it about a day's journey from where he turned south-west.

Following down the course of the Murray we came at length to Mitchell's supposed junction of the Goulburn. Then the mistake he had fallen into was explained. The river, flowing through extensive reedy swamps, had formed two channels, and it was the junction of these two channels that he had mistaken for the junction of the Goulburn.

We came in due course to the junction of the Murrumbidgee, and from thence travelled through a country of exceedingly sterile character, consisting of red sandy soil thickly covered

with pines. This description of country was met with at intervals, separated in some instances by extensive plains, until we left the river to cross the ranges to Adelaide.

It was somewhere about the junction of the Murrumbidgee that we first established friendly relations with the natives. Up to this time they had generally avoided us, but from this point the tribes used to assemble to see us pass, and send forward messages to tell the next tribe of our approach. Once only were we in danger of coming into collision with them. It was my work to lead the drays, while Mr. Hawdon looked after the stockmen, and sometimes rode ahead to see what country there was before us.

On this occasion I had directed the bullock drivers to go round the edge of a lagoon whilst I rode on to examine the country ahead. It seems that a tribe of natives, who were near the drays, when I left them, went along the bank of the river to see the drays pass at the other end of the lagoon. The men mistook this for a hostile manoeuvre, and on my return I found the two parties drawn up in battle array, the men with their guns ready to fire and the natives with their spears poised for action. The men hastily explained the situation in answer to my enquiry as to what was the matter, but from my knowledge of the customs of the natives, I knew the men were mistaken as to the intended attack, and told them to put their guns down, and then rode up to the natives and made a well-known sign (interesting to know what) to them to lower their spears. They immediately obeyed the sign, and we passed on in peace.

Many collisions with the natives have, no doubt, occurred through similar misunderstandings.

We continued to travel along the left bank of the Murray until, thinking we had passed the junction of the Darling, and seeing a good fording-place, we determined to cross to the other side of the river.

We were mistaken as to our having passed the junction of the Darling, and, after travelling some few miles, found we had that river to cross, but it was then nearly dry, and gave us no trouble.

The natives often assembled in considerable numbers, but were perfectly peaceable, and caused no annoyance, messengers being sent on from tribe to tribe to give notice of our approach.

One morning, soon after starting, we came to a bend in the river where it turned south, and continued in that direction

as marked by the lofty gums on its banks as far as the eye could reach. From this bend a broad, well-beaten native path went off in a north-west direction. Hitherto we had always followed these paths, and found that they saved us a great deal of travelling by cutting off the bends of the river. On this occasion we hesitated as to following the native path, as it seemed to be going so far away from the river; but we eventually decided to follow it. We travelled on till the afternoon, and, no sign of the river gums appearing on the horizon, Mr. Hawdon rode ahead. It was getting late when he returned, and reported that he could see nothing of the river, and wanted to turn off in the direction we had seen the gums running; but I pointed out that the river was evidently so far away that we could not reach it that night, and advised that we should keep to the native path now that we had followed it so far, as it was sure to lead us to water sooner or later. We went on and came upon a fine large lake, which Mr. Hawdon named after me. The next morning, after travelling a few miles, still following a native path, we came upon a bend of the river coming from the south. A party who followed us, not liking to venture away from the river, were said to have taken nearly a week in getting round this great bend.

Shortly after this adventure we fell in with two natives, who gave us to understand by signs that they belonged to a tribe some distance down the river, and wanted to accompany us. This they were allowed to do, and they made themselves very useful as guides.

My difficulty in conducting the drays was to know when to keep to river flats, and when to take to high land, which was here 200 or 300 feet above the level of the river, and the soil, being of a loose sandy nature, afforded very bad travelling ground. The flats were firmer, but sometimes our course would be suddenly impeded by high cliffs formed by the river flowing against the bank, and I might have to retrace my steps a mile or two before I could get on the high land; but from the time I took the native guides no difficulty of this kind occurred. I was amazed at the intelligence they displayed. Before they had been half a day with us they knew as well as we did where a dray could go and where it could not go. Although they had never seen white men before they never once made a mistake as to when we could keep the flats and when we must take the high land. These natives were well known in Adelaide afterwards, and a drawing of one of them, Finberry, is given in "Eyre's Australia."

On reaching the north-west bend the Mount Lofty Ranges came in view, some twenty or thirty miles to the westward. From this point the river runs in a southerly direction, and we followed its course for three or four days before making an attempt to cross the dense mallee scrub which lies between the river and the ranges. After a hard day's work we got through the scrub and reached the open country at the foot of the range just at dark, and were fortunate enough to find water in one of the gullies.

The steep slopes of the range being impassable for bullock teams at the point where we struck it, we travelled south for several days, and then found a pass which took us a little to the north of Mount Barker. From the top of Mount Barker we could see Lake Alexandrina a long way to the southward. As the map we had with us showed the lake as being a parallel with Adelaide, we thought we were too far to the north, and kept bearing away to the south in our passage through the Mount Lofty Range, and came out at Noarlunga, where we found the tent of a kangaroo hunter, who told us that we were twenty miles south of Adelaide. Had it not been for this error in the map we should have made a direct course to Adelaide.

Adelaide was then a collection of rude tents with a few more substantial buildings in course of erection.

The people were surprised and delighted at the arrival of a herd of cattle overland. Up to this time they had been living almost exclusively on kangaroo flesh.

I remained but three or four weeks in Adelaide, having arranged with Mr. Hawdon to bring another herd of cattle over for him, and open up a direct communication with Melbourne instead of following the tortuous course of the River Murray.

I left Adelaide in a cutter of 26 tons called the "Water Witch," this being the only vessel available at that time. We had a smooth passage to Cape Otway, but were there caught in a gale. The little vessel, however, weathered the storm, and we got safely into Port Phillip. I was the only person on board who had ever been into Port Phillip before, and as there was no proper chart on board I had to act as pilot. On arriving at Melbourne I found the New South Wales revenue cutter "Prince George" about to take prisoners and witnesses for the Supreme Court Sittings at Sydney. I was subpoenaed as a witness in the case of Dignum and Comberford, and proceeded to Sydney with the other witnesses. I

was detained in Sydney for some weeks awaiting the trial, but was never called upon to appear as a witness.

I spent some portion of the time in the Camden district; this was during the great drought of 1838. It was in the middle of winter, when the nights were bitterly cold, but the days bright and sunny, and the paddocks were as brown and bare as the middle of the road.

I then went to Howlong, on the River Murray, a station at that time belonging to Mr. Hawdon. Here I had to wait for some time for the mustering of the cattle, and it was not until February, 1839, that I was ready to start on my record journey to South Australia. Whilst waiting at Howlong I looked after the carrying of the first overland mail from Sydney to Melbourne, a service which Mr. Hawdon had undertaken to perform. The carrying of the mail was attended with considerable risk on account of the hostility of the natives, who had committed many murders, and it was owing to the courage and determination of the men selected by Mr. Hawdon to perform this service that it was successfully carried out. The cattle were at last collected at Hughes Creek near the Goulburn, and I made a final start from thence about February 26, taking a direct course to the Grampians, in the Portland Bay district.

I had about 300 head of cattle, several horses besides those required for the management of the stock, and two bullock drays. There were ten Europeans and two native boys in the party.

The country at that time was unoccupied along the route we took until we came to the Grampians. We then struck the Wannon, and in following down its course to the Glenelg we came upon one of Messrs. Henty's stations, where I was strongly advised not to continue my journey, as Captain Hart had come from Adelaide to Portland Bay three months before to take a herd of cattle by the same route that I intended to go, but having spent several days in examining the country, accompanied by a notorious bushranger, who had escaped the police and travelled along the coast from Portland Bay to Adelaide, Captain Hart pronounced the country impassable for stock, and had taken Mitchell's track to the Murray, and followed the route which Hawdon and I had opened the previous year. However, as the object of the expedition which I was conducting would have been frustrated if I turned aside, I was bound to proceed, and, after spending a day in examining the country ahead, I plunged into what was then considered an impassable desert.

Though the country was very much dried up from the long-continued drought, which had then prevailed, I managed to obtain water every day on some of the extensive swamps that lie to the westward of Glenelg. As I approached nearer the coast I came upon a lake which I named Lake Hawdon. Mount Muirhead and Mount Benson were also named by me after two of my stockmen. We then came out upon the coast at Lacepede Bay.

Here my troubles began. We found water in a swamp at a depth of a few inches, but all our attempts to water the cattle by digging trenches were fruitless. The weather was excessively hot, and the cattle, when brought up to the water, would rush into the trenches, and in a few minutes destroy the work of hours.

We persevered for three days in these unavailing efforts to water the cattle, when, a cool change with slight rains setting in, I determined to push on. Following along the flat, which runs parallel with the coast from Lacepede Bay, we got on very well for three days whilst the weather remained cool, finding drinking water for ourselves and the working cattle every night by digging wells, the cattle having only the moisture on the grass from the rain and dew to relieve their thirst.

On the fourth day the weather set in hot. In the middle of the day we came upon a watercourse in which there was a hole of water as salt as brine. Here we had to halt on account of the heat. We found brackish water for ourselves by digging, but all our efforts to get fresh water for the cattle by following the watercourse inland was unavailing. The flat along which we had been travelling had now become a shallow salt water lake. It never occurred to us to search for fresh water between our camp and the salt water ti-tree which fringed the lake. Had we done so we should have discovered a fresh water spring, and have thus avoided the difficulties we afterwards encountered.

The position we were in was now serious. I knew by observations taken that we were thirty or forty miles from Lake Alexandrina. But there was nothing for it but to push on, and towards evening we made a start. We were travelling over a sandy desert, and after going a few miles the working bullocks knocked up. Calling the men around me, I told them the course I intended to adopt. It was to push on with the cattle, accompanied by the stockmen and two native boys, and endeavor to reach Lake Alexandrina. I directed the

rest of the party to return to the salt creek, and remain there till I came back.

As soon as the cool of the evening set in we started on with the cattle, taking with us a small keg of water and a few provisions. We travelled all that night, but had to halt when the heat of the day began. We crawled on at intervals during the day, and had soon exhausted our small supply of water. We got on better during the cool of the night. When the sun rose again we were very much exhausted, and the cattle could scarcely be got to move. We were all too weak to use a stockwhip, and had to make frequent halts. About the middle of the day one of the men gave in, and was allowed to mount one of the few horses capable of carrying a rider, but he soon became too weak to sit on the horse, and we had to halt. I then determined, as a last resource, to kill a calf and use the blood to assuage our thirst. This was done, and though the drinking of the blood did not allay the pain of thirst to any great extent, it restored our strength very much. We then lay down to sleep. One man of the party refused to drink the blood, saying, "I have been in many a scrape before this, and have got through it, and I dare say I shall get through this."

About 12 o'clock I awoke and found, to my surprise, that the cattle were moving off. I went to one of the stockmen and told him the cattle were on the move. He asked me which direction they were going. I said they were going in the direction I was steering. "Then let them go," he replied; "there is not a man of the party able to head them." I followed his advice, and lay down again for a couple of hours, and then got up and roused all hands, and, collecting the horses together, we followed the tracks of the cattle, which had all gone ahead with the exception of a few stragglers. A little before daylight we came up with the cattle halted near some sheoaks. I knew by the sheoaks that we were coming to a change of country. As soon as it was daylight I climbed a tree, and to my great joy saw the water of Lake Alexandrina in the distance, and the smoke of a native fire on a timbered ridge a few miles away.

I mounted the strongest horse we had got and rode off towards the natives' smoke, hoping to find water there. I had to cross an extensively reedy flat, and, coming to a slight hollow, saw water glistening amongst the reeds. I quickly got off my horse to taste the water, which I found, to my great delight, was drinkable, though a little brackish. Filling an

india-rubber bag I had with me I rode to the men as soon as I could. Whilst I was away they had discovered a native well, and were engaged in making damper with some flour we had with us.

Our troubles were thus ended. The cattle, though they had evidently smelt the water when they started off from the place where we halted the night before, a distance of about nine miles, had curiously enough halted when they were very close to it, for we were much nearer to the water of the lake than I supposed when I climbed the tree, the high reeds bounding the shore making the water appear more distant than it really was.

The cattle were driven to the water, where they remained all day. One of them died through drinking to much, but the rest drew off to feed at night, and soon recovered from the effects of what they had gone through. One horse and two or three head of cattle were lost in the desert. The following day we removed our camp to where I had seen the natives' smoke, and where, as I expected, I found a good well of fresh water.

The next day I went back to bring on the rest of the party, and had to camp one night in the desert. When I came up with the party the following afternoon I found them much alarmed at what they considered my long absence, and they were preparing to follow our tracks the next day.

Having brought them on to our camp at the lake we halted a day or two to recruit the cattle. The water we had come upon proved to be an extensive lake connected with the main body of Lake Alexandrina by a narrow channel, and was afterwards named by Colonel Gawler, Lake Albert.

I had taken a course which led me some miles away from the coast, because Captain Sturt had described Lake Alexandrina, in a map accompanying his narrative of his voyage down the Murray, as extending a long distance to the eastward from the point where the river joins it, and as the water was said to be salt in the southern part of the lake I was afraid of being embayed in a country, where I could get no fresh water if I kept near the coast; but on continuing our journey in a due north direction, after crossing a timbered ridge, we just skirted the lake, and afterwards come upon the junction of the river a distance of about fifteen miles from our former camp, thus showing that Captain Sturt was mistaken as to the lake extending to the eastward of the junction. Colonel Gawler, who took much interest in everything that related

to the exploration of the colony, was much surprised at my account of the eastern shore of the lake differing so much from Captain Sturt's map, and Mr. Pullen, an officer then attached to the Survey Department, was sent to make a survey of the whole of the lake.

The river at its junction with the lake, being very wide and bordered on both sides by reedy swamps, was impassable for cattle, and I had to travel three days up the river before I could find the place at which I could attempt to cross it. At one point where the river swept across the swamp and approached the outer bank, I swam across it to see if there was a landing-place for cattle on the other side, but did not succeed in finding one. Whilst exploring amongst the reeds I found myself getting benumbed with cold, and had to plunge into the water at once. When about half-way across the river I almost lost the use of my arms and legs, and called to the men to send one of the black boys to my assistance. One of the stockmen and one of the black boys immediately plunged into the river and swam alongside of me, but I managed to reach the shore without their help. I had to crouch over a fire and drink hot tea before the circulation was restored. The river here was about 200 feet wide.

At last we came to a place where the river swept under a high bank on the eastern side, and, finding on examining the opposite bank that it was somewhat firmer than I had previously found it, I determined to attempt a crossing. One of the drays was so made that the body could be converted into a punt, and, with the help of this, we crossed our camp equipage, and it materially assisted us in getting the cattle across the river. They were brought up in mobs of about fifty, and, being driven under the high bank, were forced into the river. Some of the mobs gave us no trouble; one would take the lead and swim right across, the rest following. But sometimes one mob would begin to "ring" in the middle of the river; that is, to swim in a ring one after the other. All our efforts to break the ring were for a long time unsuccessful, and I was afraid the whole mob would have been drowned. At last I jumped out of the punt, and, by twisting the tails of some of them, made them shoot ahead and break the ring. It was a dangerous operation. Sometimes I would see a crowd of heads bearing down upon me, and would have to put out my hand and let them push me out of the way. At length they got to the bank on the same side that they went in, and were safely landed. The

next day they were again brought up to the bank, and one of them plunged at once into the river and swam right across, the rest following. One horse and one of the cattle were drowned in crossing.

Having crossed the river the journey may now be said to have terminated. I found a run for the cattle at what is now called Gumeracha, a fertile spot which, up to that time, was unknown to the settlers.

The journey from Henty's Station to the lake was accomplished in nineteen days, being about one-fourth of the time occupied by Captain Hart's party in following Mitchell's track to the Murray, and thence taking the river route to South Australia.

The following is an account of this journey printed in the "South Australian Gazette and Colonial Register" of April 27, 1839:

"NEW ROUTE OVERLAND.

"Mr. Bonney left Mr. Henty's (of Portland Bay) new station on the Glenelg on Monday, the 18th of March last, accompanied by ten men and two native boys of the Bathurst district, two drays, and about 300 head of cattle. It was determined by Mr. Bonney to take the most direct route possible from the starting-point, the junction of the Wannon of Major Mitchell with the Glenelg in lat. $36^{\circ} 38''$, and he accordingly directed his course to the westward. It was immediately found, however, on crossing the Glenelg that the country declined into a flat sandy level from the north to S.S.W. as far as the eye could reach. Mr. Bonney travelled two days to the southward of west over a country of a most singular description—it is a mass of swamps stretching occasionally across ten miles, and divided by belts of sheoak timber, growing on sandy soil, on which there is abundance of fine feed for cattle, the oat grass growing luxuriantly. The swamps themselves are covered with rushes, and at present are for the most part dry on the surface, but on all, fresh water could be obtained by digging a few feet. Expecting this country to extend to the northward, Mr. Bonney changed his course to the north-west. and, after four or five days travelling in that direction, finding the country changing its character, and the swamps failing to supply a sufficiency of water for the cattle, he turned off towards the coast, and in a few hours came to an extensive swamp running close under a limestone ridge, and which appeared to be in a line parallel with the coast at a distance

of five or six miles from the shore. Here water in abundance was found, and plenty of feed. The next day, proceeding in the direction of the coast, keeping the limestone ridge on the left, Mr. Bonney came upon a large fresh water lake, about twelve miles in length and four miles in breadth, which Mr. Bonney named after his friend, Lake Hawdon. The lake is situated in the centre of a very extensive swamp, through which, there being great difficulty in getting the drays, the party skirted the edge and fell in with firm ground. On leaving the lake the swamps ceased for some time, and the party travelled for about ten miles through a dense forest, in some places of a scrubby grass tree, and in others of sheoak, when they again came upon a swamp, where good water was found by digging. The swamp here was scarcely a foot deep, covering decomposed limestone, through which it was necessary to dig to find water. The depth required was generally 4 or 5 feet, and by the morning the hole was filled within 3 feet of the surface. On the day following Mr. Bonney unexpectedly struck a bay a little to the northward of Cape Bernouilli, the limestone ridge which had hitherto marked the line of the coast having here disappeared. The cattle had now been without water for two days, and the weather being oppressively hot, the party halted and endeavored to procure it near the sandhills. Water was found in abundance, in one instance within 6 inches of the surface, but it was not practicable to water the cattle sufficiently in this manner from their treading the sand into the water trenches as fast as the men could clear them out. The weather having suddenly changed from extreme heat to cold and showery, Mr. Bonney determined, though still at the distance of upwards of one hundred miles from the most easterly point of Lake Alexandrina, to make an effort to reach it. He accordingly directed the party to proceed by the borders of the dry swamp, which was divided from the beach by the sand ridge running close to the shore. This ridge was covered with sheoak, and produced excellent grass, which, with the cold weather, enabled the cattle to travel without water during the three days they continued in this route.

"On the fourth day, having made in that time about fifty miles, the party left the swamps, finding them bearing more to the westward, and being occasionally under salt water. The country now entered upon was sandhills covered with low brush, occasionally intersected by narrow swamps, in one of which a watercourse was found, wherein was a hole of water so

extremely brackish as to be totally unfit for human use. The cattle, however, drank it with avidity, and some of the horses also got at it. Water, however, sufficiently palatable was obtained by digging about 3 feet in the watercourse.

"The party was now within about forty-five miles of the lake, and Mr. Bonney hoped to reach it without difficulty; but the next day became so excessively hot that in travelling eight miles three horses and several head of cattle gave in, exhausted probably owing to having drunk too much of the brackish water at the last resting-place. The working bullocks also failed, though the party had rested during the heat of the day. It was now evident that the herd could not be taken forward en masse; and Mr. Bonney therefore took the resolution to proceed with the main body of the cattle, leaving the weakly portion to be taken back to the last watering-place, directing the men left in charge to dig holes sufficiently large for the cattle to obtain good water. The drays were left where the working bullocks gave up, in charge of three of the men. Mr. Bonney, accompanied by four men and two native boys, accordingly started by moonlight, and travelled during the night eighteen miles in a northerly direction over a barren sandy country covered with low brush. During the heat of the day, while the party rested, Mr. Bonney walked to a somewhat high sandhill, from which he saw, as he imagined, water at a distance of ten miles to the westward. In the evening the party started in the direction of the water, but after travelling twelve or fourteen miles and not reaching it, they rested until daylight, when no appearance of water in any direction could be observed. The course was now altered to the north-west, Mr. Bonney judging from the appearance of the country that he was still to the eastward of the lake. The whole party were nearly exhausted for want of water, and obliged to rest, owing to the heat, at almost every two miles. In a few hours Mr. Bonney descried in the distance a timbered ridge, and, more joyful than all, the native fires, evidently marking his proximity to the lake. At this time the party were forced to walk, the horses being scarcely able to crawl. One of the men, who was extremely ill, mounted, but the horse soon lay down under his weight, and on mounting another horse the man became too ill to proceed further. The party, therefore, halted till the cool of the evening upon a plain covered with white sand without bush shade of any kind. In the evening, the thirst of the party having become insupportable, Mr. Bonney directed a calf to be killed, the

blood of which was drunk by all but one man. The party lay down to rest, and in about an hour and a half Mr. Bonney arose considerably refreshed, and observed the cattle drawing off in the direction he wished to proceed. In about two hours the men were awake, and collected the horses and straggling cattle that remained, and followed the track of the main herd, which continued in north-west direction. The cattle had evidently, with instinct peculiar to the animal, smelt the water of the lake, though then nine miles distant, and the party only overtook the herd two hours before daylight within half a mile of the water, though it was not until sunrise that the proximity of the lake was observed, the shores being surrounded with high reeds. The water was not perfectly fresh at this spot. The shores here extend to the southward a considerable distance, and about six miles to the westward they contracted to a narrow creek apparently connecting it with the main lake. Mr. Bonney returned the next day to the dray, a distance, in a direct line, of thirty-seven miles, and in a couple of days more they were also brought up to the lake. The distance between Mr. Henty's station and the lake in a direct line, about 250 miles, was thus performed in nineteen days. The latitude of the point where Mr. Bonney struck the lake was $35^{\circ} 34''$. The herd having now rested ten days, Mr. Bonney proceeded in a northerly direction over a sandy ridge, and at a distance of about eight miles came upon a point of the main lake, the water of which was perfectly fresh. The shores were also covered with reedy flats, which were, in some places, half a mile in breadth. In a few more hours they found the entrance of the Murray to the lake. The valley of the Murray at this point was about a mile in width, and consisted of reedy flats with water nearly on a level with the banks. The party now followed up the river to lat. $35^{\circ} 9''$, where Mr. Bonney determined to attempt the passage of the river at the spot where it was contracted to the breadth of 145 yards. It was eventually accomplished with some difficulty, in consequence of the steepness of the banks on either side. The herd then passed through a dense scrub for about fourteen miles, and Mr. Bonney left it in good condition on the fertile pastures of Mount Barker. The number of cattle missing and left behind was twenty-three.

"Mr. Bonney states that notwithstanding the difficulties he encountered, and which he considers are inseparable from a first attempt, that the route which he thus opened up between Portland Bay and South Australia must become the high road

from New South Wales. Independent of the vast saving in the distance he has no doubt that on a more careful examination of the country a safe and well-watered route would be found, over which it would be practicable to bring stock and sheep to South Australia at all seasons of the year."

As soon as the news reached Melbourne that I had succeeded in getting through, parties were quickly organised to take over sheep and cattle, and the shipping of sheep from Melbourne and Tasmania ceased. Mr. Hawdon and Mr. Mundy (afterwards Colonial Secretary in South Australia), followed on my track, driving a tandem, as soon as they heard of my arrival in South Australia.

Cattle and sheep were quickly poured into the colony by the new route. At Mr. Hawdon's urgent request, though much against my own inclination, I remained in Adelaide to sell the cattle and sheep, which he continued to send over. Mr. E. J. Eyre, whose name was afterwards so well known in connection with the exploration of the interior, was then in Adelaide engaged in the same occupation as myself, and we entered into partnership, and this connection continued until he started on his memorable exploring expedition.

Lieutenant (now Sir George) Grey arrived from Western Australia about the end of the year 1839, and took an active part in sending out Eyre's expedition, forming one of the committee, with which I became associated.

A commercial crisis was setting in, and the business with which Eyre and I were associated was wound up when he set out on his exploring expedition.

I determined to return to Melbourne, but before doing so I wanted to see the district south of Adelaide, and drove with a horse and spring cart to Encounter Bay, accompanied by a black boy, whom I had brought overland with me. Whilst in the neighborhood of Encounter Bay I received a message from Colonel Gawler requesting me to accompany an expedition which was being dispatched under Major O'Halloran to punish a coast tribe of natives, who had murdered the whole of the crew and passengers of a schooner called the "Maria," which had recently been wrecked near the point where I came upon the coast of Lacepede Bay, since named Maria Creek, there being a salt water inlet there, at which some of the remains of the wreck were found.

I complied with the request, and joined the expedition. Overlanders, as we who had come across from the other colonies were called, were supposed to know all about bush travel-

ling, and Major O'Halloran frequently sought my advice and assistance when any difficulties occurred. The first occasion on which my services were required was the crossing of the horses at the mouth of the Murray, which was accomplished without accident.

The expedition was divided into two parties—a mounted party on the sandhills and a boat party—following the direction of the Coorong and acting in concert with the land party. After scouring the sandhills for some miles we sighted the native fires just at dusk, and halted for the night. The next morning we were astir at break of day, and soon came up to the native encampment. The natives fled in all directions, and I followed two of them. Being on a very powerful horse, I outstripped all other pursuers, and came up with the two natives just as they were taking to the water of the Coorong. Hesitating as to firing upon them I looked round and saw Major O'Halloran just behind me. He called out: "Dismount; take steady aim. Fire!" I obeyed orders, but the natives were some distance away by that time, and I could not tell whether the shot took effect. Before I could fire a second shot several policemen came up and commenced firing. The natives succeeded in reaching an island in the Coorong, and Mr. Tolmer afterwards swam across to the island and found the natives wounded, but they are said to have recovered from their wounds. We succeeded in capturing about forty natives, and two of them were pointed out by their companions as the murderers. A sort of court-martial was constituted, and these two men were declared to be guilty of the murders, and were hanged in the presence of their tribe.

This summary method of punishing native criminals, though not strictly legal, had a most beneficial effect on this tribe of natives, who, though very numerous, never committed another outrage on the whites.

The expedition on its return was met by Colonel Gawler, and we had a very pleasant journey back to the Goolwa, where we arrived on a Saturday. Being desirous of returning to Adelaide, and thinking Colonel Gawler would not like my starting on Sunday, I left the same afternoon, and thus missed witnessing an interesting event. The next morning being very calm and the sea unusually smooth, Colonel Gawler, merging his Sabbatarian views, in his desire to prove the practicability of the navigation of the Murray mouth, allowed Mr. Pullen to make an attempt to take a boat out to sea. He suc-

ceeded in doing so, and returned in safety. This was the first time the Murray mouth had been successfully navigated. A previous attempt had been made by the captain of a whaler, but the boat was upset, and the captain and crew were drowned. Sir John Jeffcott, the first judge of South Australia, accompanied the party, and was also drowned.

Accompanied by a gentleman who, like myself, wanted to go to Melbourne, I made the journey overland. We called at Portland Bay, and then went on to Port Fairy, and from thence to Geelong. With the exception of the settlements of Portland Bay and Port Fairy the country was still unsettled, until we came within two days journey of Geelong, and we had to carry provisions on a packhorse.

Having entered into an arrangement with Mr. Ebdon to take a share in his cattle run on the Murray, and undertake its management, I took up my abode on the run in May, 1841. This was the period of a severe commercial crisis throughout the colonies, and in twelve months there had been so great a depreciation in the value of live stock that cattle were almost unsaleable at any price. Just at this time I received an offer from Sir George Grey, who had come out as Governor of South Australia, to take the office of Commissioner of Crown Lands in that colony. Seeing little prospect of any improvement taking place in squatting affairs, I accepted the offer and returned to South Australia about the end of May, 1842.

A Few Recollections of Colonial Life.

BY WILLIAM FLAVEL.

My first experience in hot sand was in January, 1839, when walking from the Port to Adelaide. I had left my boots in the ship, thinking I could walk better without them; but in coming over the Port sandhill in the middle of the day the heat of the sand running between my toes I have not forgotten yet; in fact, I could not stand still except in the shade of a bush or shrub, so had to run from one bush to another until I got clear of the sand.

The first night on shore we slept in a wooden shed in the sand, several families together, without water, but not without mosquitoes.

When we got to the Park Lands a lot of natives were camped near the river. The greater number of them were young ones, and all in Nature's clothes. I afterwards noticed that most of the full-grown ones were pitted with smallpox. We went to live in Immigration-square, and my father went to work for Jacky White at the Reedbeds. The first work he did was to hand-reap the first wheat grown in the colony. It was a small patch near the river, not fenced, and to save all they could my brother and I were employed to glean in the stubble. Cockatoos and parrots were plentiful, but they did not eat wheat then; they did not know what it was.

THE GENERAL CONTENTS OF A HUT FOR A FAMILY.

Bag of flour, tea and sugar, pepper and salt, and meat when it could be got—always mutton.

FURNITURE.—A big box in the middle of the room answers for a table, and also for a cupboard. Bedsteads made of forked sticks driven into the floor and other sticks laid into the forks to keep the bed off the ground. A bedstead thus made answers for a seat on one side of the table.

UTENSILS.—Tea kettle, bucket, camp oven, spoons, tin plates, pannicans, knives and forks, fryingpan, and an axe. Any little valuables, such as tobacco, were buried under the dirt floor. If a traveller came, and nobody was in the hut, he was expected to eat and drink anything he could find, and replace what was left in the place where he found it. Robbing huts was not practised then.

Australian shepherds are said to lead a lazy life, but during the lambing time I never found it so. There always were more lambs born during a wet night, and a lot of these had to be

taken out of the mud in the yard during the rain, and laid by the fire in the hut to keep them alive until morning, and then it took half the next day to find mothers for them. It was a common thing then to tail from 90 to 100 per cent. of lambs. But now in the large paddocks they will not average 50 per cent. on the same kind of country. The hut I was in was the usual kind, with one lambing flock, and a boy was sent as lamb-minder, an old man sort of a boy, about twelve or thirteen years of age. We used to call him "Kiddy." He said he had just come down from further north, where he had been driving a ration cart. He had to go on one track, and come back on another, and the trip took him two days. Coming home on the second day he stopped at a deserted camping-place, and there he found the body of an old man who had camped there the night before and died. The same man had stopped at the head station two nights before, but left in the morning with his swag. Kiddy did not know what to do in the matter, so he put the body into the cart with his blanket, and took the lot to the head station. The next morning the formal enquiry was made as to the death of the swagman, and as Kiddy was the only witness it did not take long. He described the facts of the case, and was then told by the chairman that he ought not to have touched the body until an examination of the place had been made, and the reply was: "If I had left him until to-day lying there, the crows would have pecked his eyes out." The next and last question was: "How did you get him into the cart?" He answered: "I up-ended him, sir."

Gawler township is situated somewhat differently from any other towns. At one time the only crossing over the Gawler River was at a place near the brewery, called the Dead Man's Pass, so named because one of the early overlanders died and was buried there, for that crossing was only fit for bullock teams. Gawler Town is the key between Adelaide and the North and the North-East, and is likely to continue so, as there is no other direct passable road east of that town, and if you go west you make the journey longer.

In my first trip from Adelaide to Hermitage, in crossing Gilles' Plain, I saw a wild dog, the first I had seen. He was yellow in color, similar to a fox, but larger, and for years afterwards I never saw any other color, but after a time black and tan were common. We had only one horse for the cart, and a heavy load. The track was very slight up the Teatree Gully; none of the sidelings were cut, and there were big loose stones. It was dark before we got through the sand at the foot of the Gully, and before we reached the top of the range we upset

cart and contents, and I remember seeing a Dutch cheese go down the hill like a football. After getting the horse out of the harness and the cheese out of the creek, we left everything there excepting the horse until the next morning, and went on to Hermitage.

In the year 1840 farming was carried on at the Reedbeds, near Adelaide, on a very small scale, potato growing especially, as it paid better than most other crops, the land being rich and sometimes swampy. Farmer P. had a patch of potatoes in an old reed bed, which had been drained by cutting a ditch alongside and diverting the course of the water into the creek lower down; a place well suited for potatoes, and an abundant crop rewarded him for his labor. But when ready to dig, the potatoes disappeared in a mysterious manner. The pigs were blamed for it, but proved an alibi (I might mention that the South Australian Company had, some time previously, imported a lot of fine pigs from Van Dieman's Land, which they turned loose in the Reedbeds, expecting to muster them again, and their increase after a time; but somehow or other they never got back even the original stock, let alone the increase.) At that time I was working on an adjoining farm, and went home to sleep at night, and my nearest way lay through that field of potatoes; and one dark night, in about the time the potatoes were ripe, as I was slowly picking my way between the rows, I heard something moving aside out of my way, and stooping down to draw it in line with the horizon, I could see within a few yards of me a blackfellow's woolly head and bare shoulders. When I stopped he moved on, and then I heard others also walking off in different directions. I went direct home, and informed one of Mr. P.'s men that the darkeys were among the potatoes, who sent at once and reported it to his master, when the two took a gun each and went very quietly through the scrub, and got close to the natives, who were yabbering in an undertone to each other. After the two white men had listened for a while one of them fired his gun among the potatoes, which evidently surprised the diggers, for they shut up their jaw work and took to their heels. Farmer P.'s dog went after them, and got rather too close, for he received monkey's allowance, and returned faster than he went. The blacks had evidently left in a hurry, for the next morning we found their tools, consisting of yam sticks, waddies, cutters, spears, &c., lying in every direction, as also a quantity of potatoes ready rooted out. The next night the darkies came again, and notice was sent to all the neighbors, who mustered with guns sufficient to frighten the French. They

formed themselves into a circle and closed on the natives, who, when they saw resistance was useless, gave up, except one who was staggering away under a bag of potatoes, but was soon brought back. Another lay down and pretended to be dead, but the captors had a doctor amongst them, and he applied a penknife to the finger nail, and restored life very quickly. When they got the prisoners together and struck a light it was found they had got half a dozen women. The men had had enough of it the night before, and would not trust their valuable carcasses there again. The lubras were marched off to Mr. P.'s house, and they were locked in one of the rooms, with two or three men to watch them, while two others went to Adelaide for the police, and by the time they returned it was daylight. The guards were afraid to allow the natives to go outside the house for fear of an escape, so they had to grin and bear it. A small room and the weather warm, coupled with results from the fear of the darkies that they would be all hanged in the morning, created smells that Mrs. P. would have given nearly all her potatoes to have got the house clear of it, after her visitors had been removed. The culprits were taken to Adelaide and tried. The darkie who kept the bag on her back got fourteen days at Ashton's Hotel,* where she served her time as cook's mate. The rest of them had to seek a living somewhere else, for there was nothing against them, and a trespass could not be proved, as they were part of the tribe to whom the place belonged.

MY TRIP TO THE CHAIN OF PONDS.

I think it was in the year 1842 it was arranged to remove our family from the Reedbeds to the Chain of Ponds, a distance of about twenty miles north-east of Adelaide. The track was good so long as the ground was level. The sand at the foot of the Teatree Gully was heavy hauling for our four bullocks, but as soon as we got fairly into the Teatree Gully it was steep and sideling for the rest of the journey, but worse in the neighborhood of Houghton than anywhere else. At that time no sidelings had been cut nor creeks filled up. We had to find a crossing the best way we could. Our destination was a shepherd's hut on land belonging to the South Australian Company. We arrived there after dark, and in trying to cross the Chain of Ponds to get to the hut we got bogged, and had to leave everything there until the morning, when we were up early, and carried the things from the dray up to the hut.

* Sobriquet applied to the Adelaide Gaol.

yoked the bullocks, and pulled the dray out of the mud. Things then looked worse than was expected, for the axle was broken, and no blacksmith nearer than Adelaide; but the bullocks and dray had to go back somehow, so we chained the wheel to the side of the dray to keep it upright, and started on our return journey of twenty miles with one wheel locked. We had to shift the wheel several time to prevent the tyre from getting worn through. It was a weary journey, but we left the dray at a blacksmith's shop in Adelaide some time that night, and took the bullocks home to the Reedbeds. A short time after this a man started to work as a blacksmith in the shell of an old hollow gumtree near the place where our axle broke, and he worked there at his trade for years afterwards. That blacksmith's name was George Barris.

SHEPHERDING IN THE HILLS.

Some time about the year 1844 my brother and I, with a neighbor, F. T., started sheepfarming on our own account at the Sixth Creek between Mount Lofty and the Montacute Mine, with about 1,500 mixed sheep, all ages. F. T. sent his son, a boy of about thirteen years, and used to shepherding. We had abundance of water, and with kangaroo grass 2 or 3 ft. high in the gullies, we had too much feed; but a bush fire came during the summer, and cleared it nearly all away. Although we occasionally burnt round a patch, fires came from another direction; or burning trees would fall, starting the grass burning again, sometimes in the night. After the fire we had a little rain, but only a little green grass, after which the sheep ran greedily and scattered all over the place. The country there is very hilly, and was then covered with loose stones. Some of these the sheep on tops of the hills started rolling, which, as they bounded along, set others going. Some of the sheep got killed, others had their legs broken; it was a common thing to have three or four at a time with their legs in splints. The wild dogs were also very troublesome, and any straggling sheep left out at night were generally found dead the next day, or so bitten that they died. It took two shepherds in that steep country to keep the sheep together. During the summer feed got very scarce, and consequently the stock got very poor and weak, but when the wet season fairly started it seemed as if it was not going to stop raining any more, and the creeks were all flooded.

One afternoon the boy Jim brought home part of his flock, and said he had lost the others, so we had to mix the two

lots together again while my brother and Jim went in different directions to look for the missing ones. My brother soon returned with the lost sheep, and afterwards Jim's dog, but alone, and without the boy. We yarded the sheep and made a big fire and kept it burning all night, and in the morning one of us walked about twelve miles to inform his father, who mustered all the men in the neighborhood, searching for him for several days, and then got the police from Adelaide, but Jim was never found. As the creeks were flooded, and it was raining most of the time the search parties were out, the general impression was that the boy had got washed down the creek and carried by the flood into the river, and when the water subsided his remains would be found either in the bed of the river or in the Reedbeds, but as no remains were found people circulated tales that the one who went with the boy to look for the sheep must have killed him and put the body away somewhere.

Nothing further was heard of the boy until, I think, about the year 1877, when I saw a paragraph in one of the Adelaide newspapers, which stated that the recent heavy floods had removed some large logs and other accumulations that had been lodged many years ago against a tree in the river near Adelaide, and among other things was the skeleton of a human being. The police took charge of the bones, and a doctor stated they were the remains of a boy about thirteen years of age, and had probably been in that place more than twenty years. A later paragraph stated the remains had not been claimed.

UP A TREE.

Many writers have attempted to describe the mode adopted by the aborigines in climbing trees in quest of opossums, &c.; but I have never yet seen a true description in print; most of them are purely imaginative. Having often actually observed the natives climbing, I venture to give you a description of what I saw many years ago where the City of Adelaide now stands. Two middle-aged blacks (men) arrived at the foot of a smooth gum-tree, which was nearly upright, about 30 in. in diameter, and about 30 ft. from the ground to the first fork. After examining the limbs to see if any of them were hollow, and also the bark on the higher side of the tree for track, one of them determined to go up. He threw off the piece of a rug he had tied round his loins (the whole of his wardrobe), then took a stick, commonly called a cutter, about 2 ft. long and an inch thick, which had been hardened by the fire. This was flattened on one side of the smallest end by rubbing it on

stones, and then tapered to a point. He held this flat side downwards, then cut the lower portion of what was to be the first step and turning the cutter the flat side to the tree, with one blow took out a piece of bark about 3 in. square. This was the first step about 3 ft. from the ground. He then drove the point of the cutter end-wise into the bark right through the bark into the wood; and then putting his left hand on the side of the tree and the inside of the right foot in the step, caught hold of the cutter close in to the tree with his right hand, and raised himself into the step. The next step was with the outside of the left foot. The succeeding steps were all cut in the same manner, the native always standing on the highest step in order to cut the next.

The steps were about 30 in. apart, and in a line nearly perpendicular. In climbing, the native used the outside of the left foot and the inside of the right, so that he went up sideways, steadying himself with his left arm, and cutting the steps and raising himself with his right. The natives usually come down in the same manner as they ascend; but in this instance Mr. Darkey caught an opossum in the extreme end of a hollow broken limb, and in pulling it out dropped his cutter. This man "up a tree" then took the live opossum in his right hand, holding round its body and giving 'possy the free use of its legs. As he came down the main trunk he put the opossum on the bark, and it stuck in its claws, and tried to go up. Darkey holding tight, then lowered himself into the first step. He then jerked the opossum off and put it lower down, and so on till he arrived at the bottom. The first use the darkey made of his cutter after he had come down was to kill the opossum that so unwillingly assisted him down the tree.

SCRAPS.

COOEING.—I never heard the natives cooe as the white people do. They uttered a sound of two syllables of much greater power than the usual cooe, with a shrill high note at the finish that could be heard at a long distance, but different tribes may have had different sounds.

One reason why people, when lost in the bush generally walk in a circle is because nearly everybody takes a longer step on one side than on the other. To prove this, face your object, then have the eyes blindfolded, and start fair for it, and you will go on one side. Try again, and you will go on the same side. Then tie a piece of string the length of your steps between the ankles, take each step the full length of the string, and you will go straight.

Are the native man and the native dog true aboriginals? The natives at first had dingoes tamed, but when they killed white fellow's fowls they were destroyed.

I think the most dismal and mournful noise I ever heard was the howl of a wild dog. The howl of a tame dog is a very poor imitation.

THE PLATYPUS.—How does the platypus make a nest? I never saw one, but the darkeys say they go under water and make a hole in the bank, and work upwards until they get above the water, and make the nest there. The only access to the nest is under water.

NATIVE TURKEY.—The native turkey lays two eggs on the bare ground, and sits on the two. Frequently the crows took the eggs.*

HAWKS.—Where did those hawks come from in the dry season of 1859? There were millions of them travelling from north to south.

WATER.—The water was brought in the old days from the river to Adelaide in barrels rolled along the ground. A screw was put in the centre of each end, and the barrel was drawn along by a rope fastened on the screws.

Nearly all the wells and springs of water in South Australia are more or less brackish. People living on damper and mutton and drinking brackish water had better teeth than people have now, and cases of typhoid were very rare.

I once knew a man who lived by himself in the ranges near Mount Gawler, who said his name was Bill, and came from Sydney, so people called him Sydney Bill. His usual employment was splitting stringy-bark palings. He very seldom left his chosen neighborhood unless he ran short of stores, but when he did go he got drunk and did not return until his money was all spent. He was a very neat workman, and used to cut down the trees, saw them into lengths, and split them without any assistance. Eventually he came to live at the Chain of Ponds on land belonging to the South Australian Company, where he still lived by himself and worked among the timber. He then had four bullocks and a dray, and did his own carting, but when he came to live among people he had to have a name of some kind, so he signed as William Fitzgibbons. On one occasion he went to Adelaide with his dray for stores, and got back all right as far as Houghton, but when he left there to go home he was drunk. Some hours afterwards the bullocks were standing at the slip

* NOTE.—The weight of evidence shows that the Australian Bustard (Native Turkey) only lays one egg.

panel near his house with part of the dray pole attached to the chain. A neighbor then followed the pole track for some miles back and found the dray stuck fast in a stump. The bullocks, when the dray got fixed, turned round, broke the pole, and went home, leaving the driver still asleep, who, when roused up, was surprised to find he would have to walk home. Bill afterwards went to the Victorian diggings, and returned to Adelaide with seventy pounds in cash. After three weeks in town he had just enough money left to get back to Melbourne. He paid his passage money and went on board just when the vessel was ready to start from Port Adelaide. drunk as usual, and then fell down the hatchway and broke his neck. An inquest was held at the Port, and the remains of Mr. Willian Fitzgibbons were buried at the expense of the Government.

BULLOCK DRAY AND BULLOCK RECOLLECTIONS.

There are many advantages in working bullocks instead of horses in starting a new colony. Bullocks are always to be depended on for doing their work if they are able to do it, are easily kept, as they can be worked all day and at night turned out to get their own living. They do better where there are no metalled roads, as otherwise they get tender-footed. Everything about a bullock-dray is made strong, and it is not often that anything breaks. Sometimes the pole does, when the driver would have to find a suitable sapling and make a new one. I have known a dray to upset on a hillside, and go over more than once without breaking anything or injuring the polers, because the pole they draw by, turns round in the ring when the vehicle turns over. I have mentioned drays because they were always used; having only two wheels, they could be turned round almost anywhere, and cost new about half as much as a wagon, and you cannot capsize a wagon without breaking something. The carting was mostly timber for fencing or building material brought from The Tiers on the Mount Barker-road.

The reason why bullock-drivers are said to use such strong language was because most of the old hands from the other colonies brought their select bullocky expressions with them.

The road to The Tiers went from Adelaide over Gleeson's Hill, near Magill. To get down the hill with a bullock team was much more dangerous than going up, because the whole of the load had to be held back by the yoke on the neck of the polers. Sometimes to steady the dray in short steep pinches they would lock one wheel with a chain, but that threw too

much weight on their necks, and had other disadvantages. The break mostly used was to cut a tree down on the top of the hill, and fasten it to the axle-bed of the dray with a chain, and the weight of the tree behind the load would steady it down, also at the same time help to clear the road of the projecting stones or other obstructions. It sometimes happened that the butt end of the tree would go against a stump and break the drag chain, when the whole concern, minus the tree, would go down somewhere in a hurry, and the polers were in danger of getting their necks broken. Another kind of drag, and a very reliable one, is to take a pair of bullocks out of the front and hook them on with their heads towards the dray ; that way you have two pairs holding back instead of one, and as they never believe in hurrying themselves, you may be sure the pair behind are hanging back when the driver is in front.

Bullocks are hobbled below the knee and horses below the fetlock.

A BRIEF ACCOUNT OF

Explorations of the South Coast of Western Australia and South Australia prior to 1801.

By T. G.

Whatever uncertainty exists as to the name of the first discoverer of Australia, there are no doubts as to the discoverers of the various bays and headlands of the coast of South Australia. Two hundred and seventy-five years ago our western coast between Fowler's Bay and Streaky Bay was visited by Peter Nuyts. His explorations appear to have terminated in the vicinity of the islands of St. Francis and St. Peter, which were named by him. Why his examination of the southern coast was not extended more eastward is an unsolved problem.

In an old chart, published in Harris's Collection of Voyages, London, 1705, of Nova Hollandia, the south-west coastline from Cape Leuwin to the islands named is described as the "Land of Peter Nuyts, discovered 16th January, 1627. N.B. —This is the country seated, according to Colonel Parry, in the best climate of the world." Captain Flinders, in the third chart of his voyage to Terra Australis, gives a small sketch of the "Eastern extremity of Nuyt's Land copied from the chart published by Thevenot, 1663."

From 1627 to 1791 the south coastline of Australia appears to have been unvisited, but in September of the latter year Captain George Vancouver, in H.M. sloop the Discovery, and Lieutenant W. R. Broughton, in the Chatham, whilst on their way to North-West America, made the south coast at a point which was named Cape Chatham, in honor of Earl Chatham, who presided at the Board of Admiralty on the departure of the ships from England. Cape Howe, Mount Gardner, Eclipse Islands, King George the Third's Sound, Bald Head, Breaksea, Michaelmas, and Seal Islands, Princess Royal Harbor, and Oyster Harbor, also Termination Island, were all named on this visit by Captain Vancouver.

It is worthy of note that Vancouver intended to examine the south coastline of Australia, but on reaching Termination Island he recorded in his journal that the lowness of the shores, and the distant shoals extending from them, with the risk of encountering bad weather on this unexplored coast,

appeared to be fraught with such dangers that he very reluctantly abandoned his intention of further examining the south coast. His favorite project was to have coasted eastward, and to have ascertained whether Van Diemen's Land was connected with or separated from the main land. Had Vancouver been favored with fine weather it is more than probable that the coastline of South Australia would have formed a very important part of his discoveries. Quitting the shores of Australia on the 17th October, 1791, he sighted the south coast of Van Diemen's Land on the 26th October, and arrived at Dusky Bay, New Zealand, on 2nd November.

The next visit to the south coast of Australia was made by the French Rear-Admiral, Bruny D'Entrecasteaux, in the French frigate, *La Recherche*, whilst on an expedition in search of *La Perouse*. He was accompanied by another vessel named *L'Esperance*, and sailed down the west coast of Australia in December, 1792, passed Cape Chatham, and thence to Termination Island, but kept closer to the shore than Captain Vancouver had done. On reaching the group of islands named the Recherche Archipelago, D'Entrecasteaux remained a week exploring the surrounding country. He praises the general accuracy of the Dutch charts, "in that the latitude of Point Leuwin and of the coast of Nuyt's Land were laid down with an exactness surprising for the remote period in which they had been discovered." "It is not surprising," he says, "that Nuyts has given no details of this barren coast (to the east of the Archipelago) for its aspect is so uniform that the most fruitful imagination could find nothing to say of it."* Having only a short allowance of water on his vessels, and being unable to find fresh water on the main land, D'Entrecasteaux abandoned his examination to the south coast at or near Cape Adieu, to the west of Fowler's Bay, on January 3, and reached Van Diemen's Land on the 22nd January, 1793.

Lieutenant James Grant, in His Majesty's vessel, the *Lady Nelson*, of 60 tons burthen, with sliding keels, next appeared on the south coast. Owing to the diminutive size of the vessel, the English sailors named it "His Majesty's tinder box." Lieutenant Grant left Portsmouth on March 17, 1800. He arrived at the Cape of Good Hope on the 8th July, and left there on the 7th of October, passed Amsterdam Island on 2nd November, and arrived off Cape Northumberland on the 3rd December, 1800. Mount Schank, Mount Gambier, Cape Northumberland, and Cape Banks were named by Grant.

* Flinders' *Voyage to Terra Australis*, vol. i., p. lxxii.

Coasting eastwards, he arrived at Sydney on the 16th December, 1800. The *Lady Nelson* was the first vessel that made the passage out to Sydney through Bass's Straits.

Up to the year 1801 only four navigators had visited the south coast—Nuyts, Vancouver, D'Entrecasteaux, and Grant. The coastline from Cape Leuwin to near Fowler's Bay was generally well ascertained and laid down in the charts of Vancouver and D'Entrecasteaux, and from Cape Northumberland eastward by Lieutenant Grant, but from Fowler's Bay to Cape Northumberland nothing whatever was known when Captain Matthew Flinders was appointed on the 19th of January, 1801, to command His Majesty's sloop *Investigator*, previously known as the *Xenophon*. Flinders, in his introduction to "*A Voyage to Terra Australis*," says: "Many circumstances, indeed, united to render the south coast of Terra Australis one of the most interesting parts of the globe to which discovery could be directed at the beginning of the nineteenth century. Its investigation had formed a part of the instructions of the unfortunate French navigator, La Perouse, and afterwards of his countryman, D'Entrecasteaux; and it was, not without some reason, attributed to England as a reproach that an imaginary line of more than two hundred and fifty leagues extent, in the vicinity of one of her colonies, should have been so long suffered to remain traced upon the charts, under the title of 'unknown coast.'*" This comported ill with her reputation as the first of maritime powers, and to do it away was, accordingly, a leading point in the instructions given to the *Investigator*."

* Flinders was not then aware of the discoveries of Lieutenant James Grant in the *Lady Nelson* during the previous year.

Eyre's Rescue.

We insert the photographs of two men whose names are indissolubly linked together in the history of Australia. The episode that brought them together is truly remarkable, and will always be quoted as one of those happy chances that may be well considered as providential.

The scene is laid on the unknown coast of Western Australia; Edward John Eyre and his aboriginal companion, Wylie, have struggled on from that awful camp where his friend Baxter, the only white man with him, was murdered by two black native boys, who there deserted, and were never heard of again. Eyre and Wylie are reduced to the last stages of weakness by fatigue and want of food and water. Despairing of succour, as they well may in that most inhospitable wilderness hundreds of miles from any settlement in Western Australia or South Australia, they had resigned themselves to die, when, wonderful to relate, the European—not the keen-eyed aboriginal—was startled into action by the glimpse of a boat on the ocean, at which they both gazed with wistful eye. The boat disappeared without seeing their signals, but Eyre knew that a vessel might be near, and with gathered strength pushing on they found a French whaler, the *Mississippi*, anchored in a bay, which he named Rossiter Bay, after her captain.

Need we say that the suffering explorers were treated with kindness itself, and who undoubtedly owed their lives to the fortunate meeting with the captain in that most unexpected way. The photograph of Captain Rossiter is the only one known to be in existence, and may be well treasured as adding some additional value to the volume we present to our readers.

This Society is not yet in possession of any records concerning the life of Captain Rossiter prior to his visit to the south coast of Australia in 1841, in the French whaling ship, the *Mississippi*.

We are indebted to Mr. John Brazier, F.L.S., C.M.Z.S., &c., of Sydney, for the following notes: Captain Rossiter arrived in Sydney in November, 1859, in a large brig named the *Wave of Goole*, he being the captain and owner; his wife, four sons, and his daughter, together with his wife's brother and two

sisters accompanied him. On the voyage out he experienced bad weather off the Cape of Good Hope, which swept the decks of the vessel and carried away a splendid lifeboat. When nearing Australia it was discovered that the rats had eaten holes in the water casks, and Captain Rossiter decided to run into the bay in the Recherche Archipelago, where he had met Eyre in 1841. After his arrival in Sydney he retained command of the brig. I think the first place he visited was Nelson, in New Zealand, with coals; his next trip was to Walaroo, South Australia, with coals, when he returned with copper ore. He subsequently traded between Sydney, Melbourne, and Newcastle. I have often seen Captain Rossiter painting in water colors the places he had visited. He generally backed them with some of his old log books. He frequented the whole southern coast of Australia while engaged in whaling. Coffin's Bay and the Great Australian Bight were favorite places. We have a great collection of shells that he collected in these waters. Captain Rossiter died on 4th July, 1875, at my house, when I was at New Guinea with the Chevert Expedition."

In a valuable contribution to the Royal Society of South Australia, published in Volume ix. (for 1885-6), by Mr. John Brazier, on "Trochidæ and Other Genera of South Australia," several collections by Captain Rossiter are referred to which he obtained at Rossiter Bay, Recherche Archipelago, in 1841.

The following extracts are from the Life of Edward John Eyre:—

"On the 7th of May they proceeded on their journey, and on the following day had to kill another horse for provision. The poor beast being very ill previous to execution, the meat was of a most unwholesome nature, and both Mr. Eyre and his native companion were seized with a violent illness, suffering for many hours at a time the most excruciating torture. Day by day they felt themselves getting weaker and weaker, whilst the intense cold that was now setting in, and their being reduced almost to a state of nakedness, rendered their condition almost unbearable. When they again attempted to march they found themselves desperately weak and languid, and it became at last an effort to put one foot before the other. If they rested for a few moments—and they were compelled constantly to do so—it was with the greatest unwillingness they ever moved on again. There was a dreamy kind of pleasure—that most fatal of symptoms—which made them forgetful or careless of dangers and difficulties. They felt as if they could sit down quietly and contentedly, and let the glass of life glide away to its last sand."

"In this lamentable state they were gazing one morning at the ocean, oblivious of the world and of everything else, when Mr. Eyre was suddenly aroused from his stupor by what he fancied to be a boat every now and then appearing on the crest of the waves. With the eagerness of a desperate man he watched this tiny speck, until his startled senses became alive with the fact that it was no day dream or phantom of the imagination, but a reality. Hastily lighting a fire on a sand-hill, they fired shots, shouted, waved handkerchiefs, and made every signal they could to attract attention, but all in vain. The boat was too far off to see them, and they stood silently and sullenly gazing at it until it was lost to view. A few minutes of calm reflection, and Mr. Eyre came to the conclusion that the boat must belong to some whaling ship. Anxiously scanning the horizon in every direction, he at last perceived to the westward the masts of a large ship, peeping above a rocky island which had hitherto concealed her from their view. The poor native skipped with joy, and Mr. Eyre fervently offered up a prayer of thanksgiving. He could not help fearing, however, that she might disappear before they could get to her, or attract the notice of those on board. He, therefore, pushed along by himself as rapidly as the heavy nature of the sands would allow, leaving the native to follow with the remaining horses. In a short time he arrived upon the summit of a rocky cliff opposite to a fine large barque lying at anchor in a well-sheltered bay (which he subsequently named Rossiter Bay, after the captain of the whaler), and at less than a quarter of a mile distant from the shore. Lighting a fire on the rock, he hailed the vessel with desperate eagerness, and soon saw a boat put off, and in a few moments had the inexpressible pleasure of being again among civilised beings, and of shaking hands with a fellow-countryman, in the person of Captain Rossiter, commanding the French whaler *Mississippi*. His story was soon told, and the native shortly afterwards coming up, they were both treated with the greatest kindness and hospitality.

"For fourteen days Mr. Eyre remained on board, and, as if to make their escape from a terrible death more miraculous, during those fourteen days the weather was so boisterous, cold, and wet that it would have been impossible for them to have survived it had they not thus in their direst extremity been provided for by a merciful Providence.

"Most men, after the awful ordeal Mr. Eyre had passed through, would have refused to quit the friendly shelter of the *Mississippi*, and would have sailed in her whithersoever she was

bound, but his sense of duty was so strong, and his English pluck so indomitable, that he determined to persevere to the end. Accepting, therefore, the generous supply of stores, and a suit of warm clothes for each, on the 15th of June they left their kind friend, Captain Rossiter, determined to finish their unparalleled journey to King George's Sound. On the 14th Mr. Eyre landed the stores to arrange and pack them ready for the journey. They consisted of 40 lb. of flour, 6 lb. of biscuit, 12 lb. of rice, 20 lb. of beef, 20 lb. of pork, 12 lb. of sugar, 1 lb. of tea, a Dutch cheese, 5 lb. of salt butter, a little salt, two bottles of brandy, and two tin saucepans for cooking, besides some tobacco and pipes for Wylie, who was a great smoker, and the canteens filled with treacle for him to eat with rice. The great difficulty was how to arrange to pay for the various supplies so mercifully furnished to them at a moment when all hope seemed to have vanished. Mr. Eyre had no money with him, and it was a matter of uncertainty whether the ship would touch at any of the Australian colonies. Captain Rossiter intimating that possibly he might call at King George's Sound when the bay whaling was over, and as that was the place whither Mr. Eyre himself was bound, he gave an order upon a gentleman who had previously acted there as his agent.

"In arranging the payment, Mr. Eyre could not induce the captain to receive anything for the twelve days that they had been resident in the ship, nor would he allow them to pay for some very comfortable warm clothing. To the honor of Captain Rossiter it must also be added that to this day the order first alluded to has never been presented.

"After loading their horses, and bidding their kind and hospitable host farewell, they once again commenced their long and arduous journey, and were wending their lonely way through unknown and untrodden wilds. Mr. Eyre was, however, in very different circumstances now to what he had been in previous to meeting so opportunely with the French whaler. The respite he had had from his labors, and the generous living he had enjoyed, had rendered both Wylie and himself comparatively fresh and strong. They had now with them an abundance, not only of the necessaries, but of the luxuries of life, were better clothed and provided against the inclemency of the weather than they had been, and entered upon the continuation of their undertaking with a spirit, an energy, and a confidence that they had long been strangers to.*

* Life of E. J. Eyre, by Hamilton Hume, 1867.

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

LIBRARY ADDITIONS.

The following proceedings, publications, and maps, &c. have been received since the last report, and which the Society would gratefully acknowledge to the donors thereof, viz.:

Proceedings from the Royal Geographical Society, London, and the Geographical Societies of Liverpool, Manchester, Tyne-side, and Scottish Society, Edinburgh.

Proceedings and Library Catalogues of the Royal Colonial Institute and the Imperial Institute, London.

Annual Report of the British Association for the Advancement of Science, Bradford; also of Glasgow, 1901, from Geo. Griffith, Esq., Burlington House; and Reports from the Royal Dublin Society.

Proceedings from La Societè Geographie and Geographie Commerciale, Paris, Havre, Tours, Marseilles, Toulon, Neuchateloise, Schleswig-Holstein, Finland, Zurich, Lima, and Milan.

Reports from the Geographical Societies of Victoria, New South Wales, and Queensland, the American Geographical Society, School of Geography (New York).

A valuable series of publications from the Smithsonian Institution, Washington; from the American Academy of Arts and Sciences and American Museum of Natural History, New York; Minister for Department of Agriculture, Washington; also report for 1901 of Missouri Botanical Garden, from W. Trelease, Esq.; Transactions of Academy of Science, St. Louis, M.; Geographical Society of Grand Pacific, San Francisco; Philadelphia Museum and Canadian Institute; Geological Survey and Royal Society of Canada, Ottawa.

Geological Notes on Kosciusko, from R. Helms, Esq.

Proceedings Royal Asiatic Society, Calcutta, Madras, and Ceylon; Madras and Ceylon Museums.

Also Proceedings of South African Society, Cape Town; Polynesian Society, Wellington and New Zealand Institute, from Sir James Hector, Wellington, K.C.M.G., M.D., F.R.S., N.Z.; Annals of Queensland Museum.

Volume on "Adelaide and its Vicinity," from S. Newland, Esq.

Records of Australian Museum, Sydney, from S. Sinclair, Esq.

Australasian Association for the Advancement of Science, Melbourne, 1901, from Professor Liversidge, M.A., LL.D., F.R.S., University, Sydney; Ethnological Studies and Bulletin, from Dr. W. J. Roth, Cooktown; Proceedings of the Royal Society of New South Wales, 1900.

"Science of Man," from Dr. Carroll, Sydney.

Reports of Department of Mines, Lands, and Agricultural Surveys, from the Minister at Adelaide, Victoria, New South Wales, New Zealand, Queensland, and Perth; Gold Mining Statistics from the Society for Mines, Perth; Publications from Victorian Public Library, Perth.

The following presentations were also made to the Museum:

Two mineral specimens of stalagmite formation from Coffin Bay, from W. A. Mortlock, Esq., M.P.

A Map of the City of Adelaide, from Wm. Strawbridge, Esq., J.P., Surveyor-General.

A Photograph of the late Hon. David Carnegie, from W. H. Tietkens, Esq.

A photograph of the late E. J. Eyre, explorer, from R. Kyffin Thomas, Esq., President.

Photographs of Northern Territory Natives, from T. W. Green, Esq.

A Map of Warrow, Port Lincoln, made by J. McDouall Stuart in 1848; and also the top of a telescope dropped by the late E. J. Eyre, explorer, between Fowlers Bay and Eucla, from Clement Sabine, Esq.

A group of photographs of the members of the Horn Expedition and scenery of the country passed through, from Mr. C. Winnecke, F.R.G.S.

Two photographs of the grave of Charles Sturt, the explorer, from Dr. H. Marten.

A series of photographs, presented by R. T. Maurice, Esq.; and a lock of J. McDouall Stuart's hair, by W. B. Wilkinson, Esq.

THIS PLACE

from which the Gulf and its
Shores were first surveyed
on 26. Feb. 1802 by

MATTHEW FLINDERS. R.N.
Commander of H.M.S. Investigator
the Discoverer of the Country
now called South Australia

was set apart

on 12. Jan. 1841

with the sanction of

LT. COL. GAWLER. K.H.

then Governor of the Colony

and in the first year of the

Government of CAPT. G. GREY

adorned with this Monument

to the perpetual Memory

of the illustrious Navigator

his honored Commander

by

JOHN FRANKLIN. CAPT. R.N.

K.C.H. K.R.

LT. GOVERNOR OF

VAN DIEMEN'S LAND.

PLATE III.

**COPY OF COPPER TABLET ERECTED AT THE HEAD OF MEMORY COVE,
NEAR PT LINCOLN. DARK PORTIONS REPRESENT PORTIONS
OF THE ORIGINAL PLATE.—SEE PAGE 48.**

PLATE IV.



FLINDERS COLUMN, MOUNT LOFTY.

PLATE V.

CAPTAIN MATTHEW FLINDERS, R.N.



A P P E N D I X.

**The Northern Territory
of South Australia**

**A BRIEF HISTORICAL ACCOUNT: PASTORAL
AND MINERAL RESOURCES,**

By THE HON. J. LANGDON PARSONS, M.L.C.

PAGE I.

**THE CAPABILITIES OF THE NORTHERN TERRI-
TORY FOR TROPICAL AGRICULTURE,**

By MAURICE W. HOLTZE, F.L.S., F.R.S. (LOND.),

PAGE 17.

WITH ILLUSTRATIONS AND MAP.

The Northern Territory of South Australia.

A Brief Historical Account; Pastoral and Mineral Resources

BY THE HON. J. LANGDON PARSONS, M.L.C.

Read July 4th, 1901.

The Council of the Royal Geographical Society have, I assume, honoured me with the request to prepare one of the papers on the Northern Territory, because for nearly three years I was its Responsible Minister, nearly six years its Government Resident, and three years its Representative in Parliament. Twelve years of official connection with it, afforded me unique opportunities for gaining varied and accurate information about our temporarily attached Territory, and necessarily created in me a deep and abiding interest in its affairs. I can indeed say in all sincerity that for twenty years the Northern Territory has been my "White Man's Burden." Now, the Commonwealth having been happily inaugurated, and signal signs being in evidence that the old order is about to change, to give place, we all earnestly hope, to new, better and brighter conditions, it is timely that the main facts about the Northern Territory should be placed before the South Australian public.

A BRIEF HISTORICAL SKETCH

of how it was acquired and what has been done with it by South Australia, is necessary in order to arrive at a sound and statesmanlike determination as to how it should be dealt with at this juncture.

When the western boundary of Queensland was finally fixed at the 138th meridian of east longitude, and the strip of country known as "No Man's Land" had been annexed to South Australia, the great north-central part of the continent north of the 26th parallel of south latitude, and between the 129th and 138th meridians of east longitude, though technically belonging to New South Wales, was virtually unattached. After Leichardt and Gregory had made known the results of their explorations, of por-

tions of the eastern and western north coast, two proposals were placed before the Imperial Government by Sir Charles Nicholson. One was that the whole of it should be established as a separate Crown Colony, the other that it should be temporarily annexed to Queensland.

The Duke of Newcastle, after conferring with the Emigration Commissioners, arrived at the conclusion that the best course to pursue was to annex the territory south of the tropic of Capricorn to South Australia, and provisionally to attach the rest to Queensland. In November 1862 this proposition was considered by the South Australian Cabinet. They advised Governor Daly to recommend to the Colonial Secretary that two colonies should be formed, and that the western portion, at least, should be placed under the temporary jurisdiction of South Australia. (Parl. Pap. 37, 1863).

But when on December 17th, 1862, the intrepid John McDouall Stuart and his gallant party—some of whom survive, and we are proud to welcome them amongst us to-night—returned to Adelaide after crossing the Continent and having planted the British flag on the shore of the Arafura Sea, the South Australian Government applied for the annexation of the whole territory. Their request was complied with, and on July 6th 1863 Royal Letters Patent were issued confirming it.

These Letters Patent, however, did not incorporate the Northern Territory with this Province. Three times in the course of them, it is clearly and emphatically recited that so far as the whole or any part of the Territory the annexation was temporary, tentative, and terminable at the pleasure of the Crown. The concluding words are :—"We do hereby reserve to Us, our heirs and successors, full power and authority from time to time to revoke, alter or amend these Our Letters Patent, as to Us or Them shall seem fit." (Parl. Pap. 113, 1863).

In 1882 the Bray Government before asking for Parliamentary approval for the Palmerston and Pine Creek Railway, by two memoranda, which as Minister of Education I had the honour to prepare, recommended Governor Jervois to request the Earl of Kimberly, Colonial Secretary, to advise the Imperial Government to grant the "permanent possession of the Northern Territory as an integral part of South Australia." Governor Jervois thereupon wrote a dispatch, July, 19, 1882, submitting that "it was desirable that Her Majesty's Government should be moved to order that South Australia proper and the Northern Territory should be made into a single Province," and suggested that its name should be "Central Australia." The Earl of Derby, who had in the meantime become Colonial Secretary, replied, January, 6th 1883,

that while "Her Majesty's Government were fully sensible of the liberality and public spirit with which South Australia had discharged its obligations to the Northern Territory and promoted its development, yet that as hereafter, there might be established within it a large self-supporting population, having interests different from those of South Australia, the erection of it into a separate Colony, as in the case of Queensland, would be mutually advantageous and be approved by both ; it being understood that, in the event of such separation, the Northern Territory would be liable to bear such part of the expenditure previously incurred as should be found to be fairly chargeable to it." He added that in view of such an event:—"It appears to Her Majesty's Government that they could not with advantage at the present time advise the Queen to take any measures purporting to make the annexation of the Northern Territory absolute and irrevocable." (Parl. Pap. 113. 1883).

It is indisputable, therefore, that South Australia never had, nor now has any other than a provisional title to the Northern Territory. It is indisputable also that on the authority of the Imperial Government the Northern Territory is to be held liable for all expenditure fairly chargeable to it. It appears, therefore, to necessarily follow that as the existing liability of the Northern Territory to South Australia is for money spent for its settlement and development, payment for services rendered, and interest which South Australia herself has had to pay, in the event of its transference to the Commonwealth, it is all "fairly chargeable."

AREA AND GEOGRAPHICAL DEFINITION.

The total area of the Northern Territory is 523,620 square miles, or 335,116,800 acres. It lies between the 129th and 138th degrees of east longitude. Its southern boundary is the 26th parallel of south latitude, and its most northerly point nearly touches the 11th parallel. The Tropic of Capricorn, which is the point at which the sun turns again towards the Equator, occurs at 23 degrees 28 minutes latitude, so that with the exception of about 2½ degrees, it is in the tropics or torrid zone.

MAINLY A TROPICAL REGION.

Statements about the Northern Territory which have recently been made by politicians, some indeed who rank as statesmen, appear to reveal strange lapses of memory or indicate a curious ignoring of plain geographical facts. From a geographical point of view to speak of North Australia as a region to which the phrase, as politically understood, a "White Australia" can be applied, is utterly unscientific, and is weird foolishness. The Imperial and Colonial Statesmen who dealt with the disposition of the Northern

Territory, and the explorers who reported upon its more northerly parts, were too scientific and too well informed to be in doubt about its being mainly a tropical region, and that the northern portion of it was in the centre of the tropics.

Sir Charles Nicholson in his dispatch to the Duke of Newcastle, in 1862, writes :—" Mr. Gregory the distinguished explorer and present Surveyor-General of Queensland, (a gentleman upon whose caution and accuracy the greatest reliance may be placed), represents the whole valley of the Victoria River as being of the most promising description, well-adapted for grazing purposes, and no doubt admirably fitted by nature for the growth of all tropical produce such as cotton, sugar, rice and coffee."

In his reply the Duke of Newcastle when giving his reasons for favouring the annexation to South Australia of the area south of the tropic, and provisionally attaching the rest to Queensland, said it would "avoid the expense, risk, and inconvenience of founding a settlement under the auspices of the Home Government in a tropical climate." (Parl. Pap. 37, 1863).

John McDouall Stuart, after Mr. Thring had startled his companions with the cry, "The Sea," wrote in his diary :—" Thus have I, through the instrumentality of Divine Providence, been led to accomplish the great object of the expedition, and take the whole party through as witnesses of the fact, and through one of the finest countries one could wish to pass, good to the coast, and with a stream of water within half a mile of the sea. If this country is settled, it will be one of the finest Colonies under the Crown, suitable for the growth of any and everything—what a splendid country for producing cotton."

Governor Daly in his dispatch of December, 23, 1862, to the Duke of Newcastle, in which he applied for the annexation of the Northern Territory, represented that the north portion was distinctly tropical, and would require Asiatic labour for its development. He writes :—" The portions of the country traversed by Mr. Stuart, which are described as of the finest description for pastoral purposes, will naturally first attract attention. But it has now been established that this same region possesses capabilities of other kinds, which may hereafter render it more valuable than any of the mere pastoral lands. Arnheim's land is described as possessing the advantages of a tropical vegetation, and as being highly adapted for the growth of cotton, whilst its proximity to the immense labour markets of the East at the same time removes one of the greatest obstacles to successful cultivation." (P. P., 127, 1863).

South Australia having acquired the Northern Territory entered upon the work of its settlement and development with a light

heart and sanguine expectations, though many shrewd and far-seeing men, like the late George Fife Angas, expressed their grave misgivings as to the probabilities of success.

Over the mistaken policy of selling orders for unsurveyed and unseen land, the ill-starred and overweighted Escape Cliffs expedition, the resultless explorations of McKinlay and Cadell, the recall of every white man from the Northern Territory, and the welter of conflicting opinions, bickerings and blunders, I pass with bare mention.

The Government of South Australia learned by bitter experience the depths of meaning there were in the Duke of Newcastle's words, when he wrote that he would "avoid the expense, risk and inconvenience of founding a settlement under the auspices of the Home Government in a tropical climate." He foresaw the probability of costly mistakes, and costly mistakes were made. But the costs were incurred with a patriotic intention in the interests of the Northern Territory, and a mature judgment after investigating the circumstances compels me to affirm that they are all "fairly chargeable to it."

On December 27, 1868, the late Mr. G. W. Goyder, C.M.G., then Surveyor-General, sailed with a survey party for Port Darwin. In September 1869 he reported that at a cost of $9\frac{1}{10}$ d. an acre, 600,000 acres had been surveyed. Though offered double areas a large number of land-order holders demanded the return of their money. Litigation followed and was carried to the Privy Council. The South Australian Government lost all along the line. The repayments of principal, interest and costs, amounted to £73,000.

PARLIAMENTARY LEGISLATION.

From the outset the Northern Territory has been legislated for as a pastoral, a mineral, and a tropical agricultural country which required coloured labour.

After the land was surveyed, and the land-order holders had made their selections, a new Land Act was passed in 1872, part VII. of which was enacted "to promote the establishment of plantations for the growth of rice, sugar, tea, indigo, cotton and other tropical products." To make clear the policy of the Ayers Government then in office, the late Hon. T. Reynolds, Commissioner of Crown Lands, said :—"Companies taking up land who would cultivate the country on a large scale, would have to obtain a large amount of labour." (Hansard p. 1467). To remove all doubt as to the kind of labour that was meant, the late Hon. J. H. Barrow, Treasurer, said :—"If the Northern Territory was to be populated it would be to a great extent by coolie labour." (Hansard p.1873).

In 1874 the Blyth Government informed Captain Douglas :—
 “The Government have accepted the offer of your services to engage on their behalf about 200 Chinese coolies for service in the Northern Territory. On your arrival in Singapore you will engage the men for two years. It must be understood that the men will be expected to work for private persons, or upon public works, or in such other way as the Government may direct.” These Chinese coolies were introduced chiefly for the mines, and were the first Chinese introduced. (Parl. Pap. 38, 1874).

In the same year the Government opened a correspondence with the Government of Ceylon, for the introduction of Indian coolies for cultivation.

In 1875, at the instance of Mr. C. H. Goode, the Government corresponded with the Rev. J. Skrefsrøid of Santhal and offered to pay his passage to Adelaide and Port Darwin, with a view to introduce Santhals. They also suggested that the Agent-General should consult Mr. Skrefsrøid “as to the advantages which might accrue from the circulation of information affecting the application for land for plantation purposes, translated into the different dialects throughout the Indian Provinces.” (Parl. Pap. 73, 1875).

In 1879 the late Hon T. King, Minister for the Northern Territory in the Morgan Government, introduced a Northern Territory Indian Immigration Bill. He said :—“Indian coolies such as were employed in India, Mauritius, and the West India Islands, were the best class of labour for the purpose. It was a well known fact that unless they obtained coolie labour they would never have any plantations.” (Hansard, 1246).

Mr. Quin, really the first Labour Member in our Parliament, said :—“He thought it was necessary that they should have black labour in the Northern Territory, but that persons who bought land in that part of the country should pay all the expenses of getting labour there.” (Hansard, p. 1250).

In 1880 the Morgan Government carried a Bill through both Houses, “to encourage the settlement of the Northern Territory and to provide for the cultivation of sugar-cane and other products,” by Indian immigrants. This Bill was not assented to because the Imperial Government considered its provisions inadequate.

In 1882 the Bray Government, after sending Major Fergusson to India to confer with Indian Government, carried the Indian Immigration Bill. It was assented to by Her Majesty, and is still on the Statute Book. It has, however, never been available because an Immigration Agent-General has never been appointed.

In 1886 the Downer Government, Sir J. A. Cockburn, K.C.M.G., being Minister for the Northern Territory, let a contract for the construction of the Palmerston and Pine Creek Railway, by "optional," meaning coloured labour.

Agent- In 1891 the Playford Government placed an amount on the Northern Territory Estimates for the payment of an Immigration General, to facilitate the introduction of Indian coolies. (Hansard 1945). But the Government did not make the appointment.

In the same year the Playford Government agreed to an amendment of a motion by Mr. W. A. Horn, that as an experiment, "50 experienced agricultural labourers and their families should be introduced under the Indian Immigration Act, that a special area of land should be set apart for them, and that subsist money should be provided until the land could maintain them." (Hansard p. 2274). Senator the Hon. T. Playford visited India and the Northern Territory to give effect to the resolution.

In 1895 a majority of the Northern Territory Commission recommended the Kingston Government to "amend the laws relating to the importation and control of Asiatics and all other alien labour in the direction of limiting the time of their service and residence in the Northern Territory, and the nature and character of their work, similar to that provided for in the case of the employment of Kanakas in another colony." (Parl. Pap., 19,1895).

These references and quotations establish that down to 1891 the Governments of South Australia pursued a consistent and continuous policy. This need cause no surprise. There was no political party hostile to it to be placated or secured. Ministers and Members of Parliament recognised the reign of Natural Laws. They knew and accepted that climate is determined by latitude, and that a country the north coast of which is in the same latitudes as Mozambique, Samoa, Abyssinia, and Senegambia, must have a genuine tropical climate, and that if its lands were to be cultivated both on sanitary and economic grounds it must be by tropical races.

On this point Senator T. Playford in his report gives his conclusion :—"The Territory must have cheap labour if tropical products are to be grown and sold with profit in the markets of the world. This is admitted by all who have any special knowledge of the subject. Only tropical products can be grown in the Territory. European labour is not cheap, therefore if Europeans could stand the climate, tropical products could not be produced at a profit by them. It is generally admitted that Europeans cannot stand field work in tropical countries ; therefore, first on the ground that European labour is not cheap, and secondly on the

ground that the labourers cannot stand the climate, it is not possible to employ Europeans at tropical agriculture." (Parl. Pap. 97, 1892).

I, speaking not as a politician but as a travelled man, as Government Resident for six years, and as a humble member of the Royal Geographical Society, endorse this conclusion. It applies to tropical Queensland and Western Australia. It applies most emphatically to the Northern Territory, the best arable lands of which are 300 miles nearer the Equator, than the most northerly plantation in Queensland.

LABOUR BEST ADAPTED FOR AUSTRALIAN TROPICS.

The labourers best adapted for the Northern Territory and Australia generally, are our fellow subjects of the Indian Empire, especially the Tamils. Experience in Mauritius, British Guiana, and even in Fiji which is in Polynesia itself, has demonstrated this. Arrangements can be made between the British, Indian and Commonwealth Governments to meet every contingency and difficulty, for the common advantage of all; and if they are introduced there will be created wide openings for the investment of capital, and for the employment of a very large number of Europeans as overseers, engineers, foremen, artisans, clerks, and sailors to export the produce.

Senator T. Playford reported :—" My enquiries in India cause me to say without hesitation that the Madras coolies, commonly known as the Tamils are the best of the Indian races. They are recognised as the most industrious, hard working, and the least troubled with caste prejudice of any of the natives of India. The Government of India will assist us in procuring emigrants in every way they can."

The one all-important provision is that in each indenture there shall be a clause providing that every immigrant and every member of his family on the expiration of the term of his engagement or re-engagement shall return to their native land. All the difficulties and troubles in Natal and other British Colonies have arisen from the neglect of this precaution. This is not high class humanitarianism, but it is probably necessary for race preservation, and it will maintain a " White Australia " in the only sense compatible with the development of its agricultural resources. It is also in accordance with the recommendation of the Northern Territory Royal Commission. The alternative is the retention of a vast area of arable land, which Australians cannot cultivate themselves, and will not allow others to cultivate. Utilization of land is the strongest and best title to rightful ownership. It is the only justification for a white race to retain the tropical area

of Australia, to the exclusion of Asiatics from a vast outlet for their crowded and often starving populations. Australia geographically belongs to them, for Australasia is South Asia.

FINANCIAL POSITION OF THE NORTHERN TERRITORY.

The liabilities of the Northern Territory to South Australia, as given by the Hon. P. W. Holder, are—

Total existing bonded debt	£2,114,205
Cash temporarily advanced	738,290
	<hr/>
	£2,852,495

The Assets may for the purposes of a balance sheet be stated thus :

Railway, Jetty, Lighthouse, Public	
Buildings and Works, Roads, &c.	£1,200,000
Overland Telegraph from 26 deg.	
to Port Darwin	452,000
Unsold Lands, 334,643, 570 acres	
at say 1d. per acre	1,394,348
	<hr/>
	£3,046,348

This would give a surplus of £193,853.

It is of course ridiculously absurd to value the land at 1d. an acre, but it is necessary to show how the liabilities can be met. The original price was fixed at 7/6 per acre. The price in the present Act is 10/- per acre.

On the facts and figures, it is obvious that South Australia has a wide margin of security for her advances. South Australia need not hawk about the Northern Territory, or nervously and beseechingly implore the Commonwealth to accept it with its full liabilities.

But in view of the fact that the southern portion can be best administered and developed from the south, in my evidence before the Royal Commission, (p.45) I recommended that the northern boundary of South Australia should be taken to the 21st parallel of latitude. The additional area, which would include the Macdonnell Ranges and Barrow Creek, would be 125,760,000 acres. If this 125,760,000 acres be deducted from 335,116,800 the area of the Northern Territory would then be 209,356,800 acres. Then on the basis of calculation at one penny per acre, South Australia must take over £524,000 of the total debt of £2,852,495. This would leave the debt of the diminished Territory at say £2,400,000. This suggestion may perhaps be worth considering by both the South Australian and the Commonwealth Parliaments.

PASTORAL RESOURCES.

We now come to deal with the land of the Northern Territory. 523,620 square miles is a vast public estate. It is nearly five times larger than the United Kingdom. It extends over fifteen parallels of latitude, and nine meridians of longitude. It has of course every variety of soil, and, truth to tell, it has also tracts in which soil is absent. It has also a great variety of climate, mostly tropical. The average rainfall at Port Darwin is about 62 inches, at Charlotte Waters about 6 inches.

These Northern Territory lands have been by some much overpraised, by others much under depreciated. In such a vast expanse of Australian country there are stony wastes, rolling sandhills, spinifex thickets, waterless regions, rocky and sterile ranges. But there are also wide undulating downs, broad well-grassed plains, rich alluvial flats, and on the north coast large navigable rivers.

Of the Victoria River Country on the west Mr. Wilson, the geologist to Gregory's expedition, wrote :—" In no part of the world have I seen grass grow so luxuriantly, and Mr. H. Gregory observed to me during a ten days' journey, when I accompanied him and his brother to the upper Victoria, that he had seen more grass land than during all his life before. An aggregate of 5,000,000 of acres came under the united observation of the party, and may all be considered well-watered pasture land."

Many years after Mr. N. Buchanan reported to me :—" I can confirm Gregory's accounts, that the Victoria River Country contains some of the finest pastoral lands in Australia. The grasses are principally Mitchell, Landsborough or Flinders, and blue grasses, with some barley grass. The country is well watered back from the river and its tributaries, which are permanent."

Of the Victoria River Captain Carrington wrote :—" Perhaps the value of this magnificent stream as a commercial highway may be better shown by comparison. In making the comparison I have only in view its capacity as a harbour and easiness of access. I have no hesitation whatever in saying that the Victoria is superior to the Thames, the Mersey, or Hooghly. The quantity of land for which the Victoria is the natural, and I believe only, outlet is approximately 90,000 square miles, or say 57,000,000 acres."

Of North-east Arnheim's land, Mr. H. Heber Percy, a Queensland squatter, reported :—" I was surprised to find the land so good. It is destined sooner or later to be made use of for agriculture and to carry a large population."

Of the eastern country, Mr. Isaac Little, a pastoral tenant, wrote :—" I estimate that this part of the table land will carry

from four to five millions of sheep. Of course large sums for fencing and dam-making will have to be expended first."

It must be admitted that the Alexandra bore has not been a success, and Mr. H.Y. L. Brown is of opinion that the crystalline limestone found in that region is not encouraging for artesian supplies. But on the other hand Mr. John Costello of Lake Nash, in his evidence before the Royal Commission, wrote :—"There is a large area of country from Newcastle Waters and the head of the Roper to the Queensland border at Cammoweal. This magnificent belt of country known as the table-land may be said to be the cream of the pastoral land of the Territory. I have the fullest and greatest faith in the future of squatting in it. I have travelled over most sheep raising country in Queensland, and I can safely say, that in no part of that Colony have I seen country better adapted for wool growing than this splendid table-land. A permanent supply of water can be obtained in this country at a depth varying from 150 to 250 feet. It would not require an expensive boring plant to put down a 7-inch tubed well that depth. At each such well, 6,000 to 8,000 head of cattle could be watered. It would be a certain reserve store in case of drought. I think I might safely say that (with sufficient wells) the stations from Lake Nash to the head of the MacArthur would be equal to supporting 10,000,000 sheep."

Of Central Australia the late Mr. E. S. Flint of Alice Springs, wrote :—"Cattle and horses thrive well, especially the latter, which in dry seasons are able to travel farther from water to feed. I am of opinion that Central Australia will be the chief horse producing district of Australia. Its contiguity to the tropics renders horses more hardy, and better able to cope with the heat and other drawbacks attaching to a tropical country than animals bred further south."

These are sample reports covering all parts of the Northern Territory. The writers are reliable, practical men. There is also a considerable literature of explorers and surveyors, such as Gregory, Leichardt, Winnecke, Lindsay, Ravenel.

The area held under pastoral leases in 1899, the latest statistics available, was 271,994 square miles; the area declared stocked 28,692 miles.

No doubt the question will be asked, "Why then is not the pastoral industry in a more prosperous condition?" To this a threefold reply may be given.

1. Just at the time when cattle were cheap and stocking was proceeding rapidly the red-water disease, caused by ticks I believe, developed, decimated the overlanding herds, and stopped all enterprise.

2. The great financial crisis in 1891-2 caused the calling in of capital in outside investments and the abandonment of a large number of promising pastoral undertakings.

3. The protracted drought which has so terribly reduced the sheep and cattle in Queensland, New South Wales, and South Australia has in degree been experienced in the Northern Territory, and the scarcity and high price of stock has necessarily stopped inland and northern pioneer projects.

But there have been good seasons before and there will be good seasons again. Flocks and herds will multiply and increase, and be again available. The markets of the old world are constant and expanding for frozen and canned meats. The Far East, with the United States in possession of the Philippines, with the growth of manufacturing in Japan requiring a more generous diet for factory hands, with China being forced into adopting Western civilization and the opening of her enormous mineral fields and the construction of railways, there will be a new and growing outlet for Australian stock and food supplies. The South African War has proved the soundness and endurance of South Australian horses bred in the north, for rough campaigning. Remounts for the Indian, Japanese, and Chinese armies will be much in demand, and large areas suitable for horse-breeding are known to exist in the Northern Territory.

THE TRANS-CONTINENTAL RAILWAY—NORTH TO SOUTH.

Here I venture to insert a brief interleaf on the trans-Continental Railway from South to North. This line is a necessity for development, and is a certainty. It may be delayed by rival schemes and state jealousies. But it must be constructed. It might have been and ought to have been built years since. If South Australia would have granted a sufficient quantity of land, and the quantity, in reason, is of comparatively little importance, Oodnadatta and Pine Creek would now be connected by railway. With not a farthing added to the bonded debt of the State, millions would be in process of expenditure in utilization and development, and every acre of land retained would have a real, marketable, and increasing value.

But dog-in-the-manger jealousies prevailed through many years. Then compliance with the demands of a political party, that made the non-alienation of any more Crown Lands a plank in their policy, and a sentimental notion that somehow posterity would be defrauded, has caused South Australian Governments to turn a deaf ear to every proposal to construct a railway on the land-grant principle.

Posterity, as well as the present generation, will reproach us for our selfish stupidity in hoarding up the land and piling up the

bonded debt. By making the State a gigantic landlord we find tenants fail to keep the covenants of their leases, and under one pretext or another, refuse to pay, or cannot or do not pay their rents.

What is our State's position? We owe to bondholders say £25,000,000. We pay say £1,000,000 a year in interest. In 25 years we shall have paid in interest £25,000,000, and we shall still owe the £25,000,000.

Would it not be a far more sagacious and sounder policy to sell at least as much land as would pay off the amount which is represented by our non-revenue earning liabilities?

Certainly, so far as the Northern Territory is concerned, vast areas of its land are practically valueless without through railway communication. With a railway that involved no expenditure for interest, its prosperity would advance by leaps and bounds. If land be sold to construct it, or be granted for its construction, it is still land. It cannot be taken away. It will be always there available for equitable taxation. Our unsold land is the State's capital in the same sense as uncoined bullion may be the capital of a Bank; and as the bullion can be coined as it is required, so the land should be sold or granted as railways and public works are wanted. And I confidently venture the statement that if this be done posterity will bless and not blame us.

But whether by land grants, or land sales, or by the issue of bonds, South Australia should insist upon the completion of the trans-continental railway from Oodnadatta to Pine Creek within a specified time as a preliminary before entering upon any negotiations with the Commonwealth Government for the transfer of the Northern Territory. If this be not made a firm and irreducible condition, the railway may be taken eastward to suit the Eastern States, and South Australia will lose its central geographical advantages. The experience of Western Australia should warn South Australia against placing any reliance on general understandings, or accepting indefinite or implied covenants or promises.

MINERAL RESOURCES.

There is a paragraph in the Report of the late Rev. J. E. Tenison Woods, F.G.S., on "The Geology and Mineralogy of the Northern Territory," which has been often quoted. I quote it again, because I believe it to be absolutely true. He wrote:—"I confidently assert that the Northern Territory is exceptionally rich in minerals, only a small part of which has been made known to the public. I do not believe that the same quantity of minerals, veins of gold, silver, tin, copper and lead, will be found in any equal area in

Australia. In fact, I doubt if in many provinces will be found any country, so singularly and exceptionally favoured as Arnheim's Land is, in respect to mineral riches."

Professor Tate, F.G.S., before him and after examination, had reported :—"The development of the mineral resources of the Northern Territory is but in its infancy, and I believe that rich stanniferous lodes will yet be found. Rich auriferous lodes abound over a large tract of country. It is my honest conviction the gold reefs can be worked profitably and to a considerable depth."

Mr. H. Y. L. Brown, F.G.S., Government Geologist, in his evidence before the Commission said :—"The present gold mining fields are capable of much further development. They should go in for deep mining. They are only working on the surface now. There is a good deal of country for prospecting in the neighbourhood of the existing goldfields. At the mouth of the Fitzmaurice I saw likely country for gold. The rocks at the mouth are auriferous. A good proportion of the best mining country is still open." He refers also the Alligator River, Blue Mud Bay, Cape Arnheim and the Nicholson River as worth prospecting. Of Tennant's Creek he said :—"The rock formations there are essentially those in which gold may be expected to occur and are well worth prospecting."

At Barrow's Creek the rock formation and what I heard of the country east and west are most favourable to the occurrence of gold and other metallic minerals.

The Bynoe Harbour tin mines showed tin lying on the surface, but had never been tried at a depth." Now one of these is being successfully worked by a Port Darwin Company.

Mr. Brown also reports favourably on other goldfields, tin and copper areas. On the Victoria River and Fossil Head where carboniferous fossils were discovered by him, and at the Mac-Arthur River, where shale beds exist, he states that coal seams probably exist.

Mr. J. V. Parkes, late Inspector of Mines, in his full and detailed report says :—"I have no hesitation in saying that the Northern Territory is phenomenally rich in minerals, but more especially in gold and tin."

I could of course fill pages with favourable quotations and facts from practical, experienced, and reliable men. Particulars might also be given of the pearl shell deposits. But these must suffice.

The corrected figures now given state the estimated value of the gold exported as £2,090,155. There is every reason to believe the total value won is much higher. When an export duty existed

the Chinese smuggled gold on board steamers in every conceivable way, and since the abolition of the duty, for safety and secrecy, they systematically conceal the actual quantities.

These authentic and expert statements indicate some of the mineral resources of the Northern Territory. I have not hazarded opinions of my own. I have given the well considered, official deliverances of scientific men whose names will carry weight everywhere. There have been of course many failures, disappointments, blunders, extravagances and market riggings, caused by ignorance, incompetence, recklessness and dishonesty. Great, too, have been the obstacles due entirely to the tropical climate. Over some parts of the mineral history of the Northern Territory the trails of the unprincipled mining expert and the bounding exchange speculator are badly conspicuous. But after making all due allowances for faults, failures and deceptions I hold fast firmly to Tenison-Woods's opinion which I had from his own lips :—
“Years will not exhaust the discoveries to be made when the difficulties of labour have been got over. The Northern Territory will become one of the great mining centres of Australia.”

CONCLUSION.

Such then without referring to what I believe to be the richest resource of all—the arable land, and tropical agriculture—which will be placed before you by my talented, cautious and sternly honest collaborateur, Mr. Holtze—are some of the facts in the history, legislation, natural features and resources of the great Territory, which is provisionally attached to the Province of South Australia by the Crown. Its north coast fronts South Asia and the Netherlands-India Archipelago. It has at Port Darwin one of the largest, safest, deep-water harbours in the world, with a spacious natural site for docks and wharves. Port Darwin is within a few days steaming of Singapore, which will be the terminus of the Southern Trans-Asian Railway, which is certain to be constructed and which will be the mail route of the future. It must be the chief shipping port on the north coast of Australia.

The present position of the Northern Territory is one of profound interest, and calls for patriotic statesmanship from both the South Australian and Commonwealth Parliaments. The true attitude for South Australia to take is one of calm and assured confidence. The tropical labour question cannot be settled until the future of the Northern Territory is determined. The Northern Territory is intrinsically certainly worth a great deal more than its liabilities. If South Australia be content to part with it on being recouped for outlay, or to take over a portion of it on equitable terms, well and good. Clearly, however, the nature of South Australia's tenure, as well as respect

for the reserved rights of the Crown, required that the State Government should have first communicated its wishes and intentions to the Imperial Government.

I am of course aware that in the Definition Clause (6) of the Commonwealth Act, in which the "States," are enumerated, to "South Australia" are added the words, "including the Northern Territory of South Australia." But this I apprehend cannot be held to revoke or cancel Royal Letters Patent. Nor does it render unnecessary the respectful request to the Imperial Government to consent to the suggested transfer of the Northern Territory if it be considered expedient. Clause 122 indeed, seems to require this. The clause reads:—"The Parliament may make laws for the Government of any territory, surrendered by any State to, and accepted by, the Commonwealth, or of any territory placed by the Queen under the authority of, and accepted by the Commonwealth, etc."

There is no reason to assume that the Commonwealth Parliament will be unmindful of the cares and anxieties which South Australia has endured, or of the gallant, if sometimes fitful, efforts she has made. If any insuperable difficulties should arise in the negotiations we have primarily to deal with the Imperial Government. A former Government graciously assured us that "Her Majesty's Government are fully sensible of the liberality and public spirit with which the Government of South Australia has discharged its duty to the Northern Territory, and promoted its development." South Australia may rely, therefore, upon the friendly offices of the Imperial Government to secure her just rights, and the payment in full of the expenditure fairly chargeable to the Northern Territory.

To all which I am constrained to add this last sentence "lest we forget." South Australia must insist upon the construction of the railway through the Northern Territory from Oodnadatta to Pine Creek, for certain, and within a reasonable period, before she agrees to surrender the vast and valuable Territory which was placed under her control by the late Queen's Government in 1833 and was confirmed to her by a succeeding Government in 1833.

The Capabilities of the Northern Territory for Tropical Agriculture.

BY MAURICE W. HOLTZE, F.L.S., F.R.S., (LONDON).

Read July 4th, 1901.

I have been asked to give you a short address on the capabilities of the Northern Territory for Tropical Agriculture, and will endeavour to do so to the best of my abilities. I am only afraid, that after the eloquent paper of my friend Mr. Parsons, which we have just heard, I will not show off to advantage. However, I have one consolation, and that is it is left to me to speak about the Territory's capabilities for agriculture.

IMPORTANCE OF AGRICULTURE.

Agriculture must ever remain a Country's mainstay. Without successful agriculture no lasting prosperity is possible. The richest mines will at last become exhausted, pastoral occupation is suitable only for sparsely populated regions, but agriculture, like the brook, goes on for ever. A good farmer never exhausts his soil, but improves it by his labours, and it has been justly said, that the man who makes two blades of grass to grow where previously only one grew is worthy of more praise than the general who has won a hundred battles. I think, therefore, that in order to prove that the Northern Territory is fit for permanent settlement it is necessary to show that the country is fit for agriculture, and I will endeavour to show that this is the case.

Now I am not a company promoter, and must therefore caution you not to expect glowing descriptions of a land capable of growing everything, everywhere, and without exertion, a land where you scrape the ground, throw down a few tobacco seeds, and then after some time come and pick the best Manilla cigars ready made from the bushes. No! The Northern Territory has no such capabilities. On the contrary, a large part of the country is utterly unfit for cultivation, and it has been its curse that inexperienced persons have tried to establish plantations on unsuitable land,

and then explained their failures by asserting that the country is unfit for cultivation. This is not the case. There is quite enough suitable land for very considerable cultivation, quite sufficient to make the country prosperous. But proper selection must be made very carefully by a man understanding the properties of the soil in the dry season and in the wet. The manager must know his business, not only from books or from a casual run through a plantation, perhaps quite different in soil and rainfall from the place he intends to cultivate. Then with sufficient means and suitable labour, plantations in the Northern Territory will succeed, but not before.

AGRICULTURAL LAND IN THE NORTHERN TERRITORY.

Here now, before going further, I must say, that in my opinion, the agricultural land in the Northern Territory is situated near the sea-coast and on the banks of the rivers flowing to the sea. Not that there is no good land inland, but the lack of sufficient rain will, in most cases, militate against successful tropical agriculture. We must therefore take it as granted that plantations should be kept within a belt of say 80 miles wide round the coast. This would give us an area of about 80,000 square miles. A small part of the Northern Territory indeed, but yet, even granted that less than one quarter of this area is suitable for agriculture, it is sufficiently large to employ a number equal to all the inhabitants of South Australia in tropical agriculture. This assertion may seem greatly exaggerated till you remember that Java, within less than five days' steam from Port Darwin, carries on something like 80,000 square miles a population of considerably over twenty millions.

PRODUCTS THAT MAY BE SUCCESSFULLY GROWN.

Now you will ask : "Is there land suitable for agriculture in the Northern Territory? Is the climate and rainfall suitable, and what plants can be successfully grown?" To the first question I can say, those parts of the Territory I have seen myself, have decidedly a larger proportion of good arable land than I just estimated, and persons quite able to judge who have seen other parts of the coastland, maintain that this is the case also there. The rainfall of the coastal parts of the Northern Territory is almost identical with that of French Cochín China, and this country, besides feeding its own teeming population, exports annually half a million tons of rice. I can hardly do better than to quote here from my report on Agriculture in French Cochín China, written in 1887 :—

"Early on the morning of the 4th of March we started by railway to see the country. The railway goes up to Mytho, seventy-two kilometres (forty-five miles) from Saigon. The whole of the

environs of Saigon and both sides of the railway line may be termed one large rice-field. The soil and the whole aspect of the country is so very similar to the banks of our large rivers that the most discriminating judge would not be able to find where the lands of the Saigon River are superior to those of, for instance, the Adelaide and Alligator rivers. A sample of soil dug up by me at Benluck, during the stopping of the train, from the nearest rice-field has been pronounced by everybody who has seen the Adelaide River as inferior but very much like the bulk of the Adelaide river land. Yet Saigon is able to export this year some nine million piculs, or in a round sum, half a million tons of rice, while our poor Territory, with a better soil and better climate, has to import even the small quantity of rice consumed there, while her large areas of arable land lie idle.

"I have before this strongly and repeatedly recommended that the Territory should be encouraged in every way to grow rice, but since I have seen Saigon and its rice country I am more than ever convinced that only cheap labour and liberal land laws are required to make the Northern Territory the great rice-field for the Australian colonies.

"I subjoin here the rainfall for Saigon, according to the *Annuaire de la Cochinchine*.

	1884.		1885.	
January	2.1	millimetres	—	millimetres.
February.. .. .	4.5	"	—	"
March.. .. .	—	"	5.0	"
April	4.7	"	37.20	"
May	99.7	"	145.60	"
June	102.55	"	186.0	"
July	307.85	"	743.0	"
August	127.05	"	119.90	"
September	314.25	"	129.20	"
October	187.80	"	117.60	"
November	117.88	"	105.40	"
December	37.0	"	39.73	"
<hr/>				
Totals	1,305.3	millimetres	1,628.63	millimetres
	or 52.20	inches.	or 65.14	inches.

"By this table it can be seen that Cochinchina has a distinct dry and wet season like the Northern Territory, whose rainfall is somewhat heavier than that of Saigon, while the temperature (as Saigon is almost the same latitude north, 10.46 deg., as Port Darwin south) is very near the same."

The rainfall of the Northern Territory for the thirteen years from 1887 to 1899, the only period the records of which I have just at hand, is in round numbers as follows for Port Darwin ;—

1887	67 inches.	1894	60½ inches.
1888	61 "	1895	78½ "
1889	52½ "	1896	67½ "
1890	65½ "	1897	74 "
1891	74½ "	1898	58 "
1892	42½ "	1899	59½ "
1893	62½ "		

This record, I take it, compares very favourably with that of Saigon, and so far as the cultivation of rice is concerned, there is no doubt whatever that the Territory could produce all the rice the Commonwealth of Australia ever will require. There are, however, other plants which with proper management can well be grown in the Northern Territory. This I have proved to the satisfaction of every visitor able to judge, in the Botanic Garden at Port Darwin, the soil of which is decidedly not superior to the average soil of the Northern Territory, and have done so on an expenditure per acre less than that generally considered necessary on properly conducted plantations. If I had not done this, how could I have obtained the numerous distinctions for my exhibits at the Calcutta Exhibition, where I competed against the best efforts of India, Ceylon, and Queensland, and where I was awarded eight Certificates of Merit together with two Gold, one Silver, and three Bronze Medals for produce grown in the Botanic Garden, produce prepared without proper appliances, simply with domestic implements by Mrs. Holtze and myself?

Now, I will not weary you with an enumeration of the long list of plants which have succeeded under my management in the Botanic Garden at Port Darwin, but will only mention the names of a few whose cultivation I consider particularly advantageous to the Northern Territory. These are:—sugar, rice, coffee, tobacco, cocoanuts, India rubber, jute, ramie, arrowroot, tapioca, sesamseed, and peanuts, besides maize and the usual food and fodder plants and fruits of the tropics. For all these plants the soil and climate of the Territory are quite suitable, and there is no reason why they should not be successfully grown.

CAUSES OF NON-SUCCESS.

Now you will ask:—Why are there no successful plantations in the Northern Territory after so many years of occupancy? It is hard to say, why not? However, incapable management, insufficient capital, selection of unsuitable soil, and employment of unsuitable labour, have to answer a great deal for the failures which have been recorded. When you read through my published reports you will repeatedly find my warnings against the careless selection of land for plantations, and it is to be regretted that so little attention was paid to my advice, as the failures of our early plantations has had the effect of preventing further experiments,

THE LABOUR QUESTION.

No doubt you expect now to hear my opinions on the coloured labour question, but in this I am afraid I shall disappoint you. No doubt the Federal Parliament will have to give this matter its best attention, as statesmen should. I may perhaps be permitted to relate here a little story of my younger days :—Some forty years ago I saw in the cottage of a German farmer a picture with the inscription : “The nine stages of human society.” This picture showed on steps the figures of a king, a soldier, a doctor, a merchant, a lawyer, a parson, a schoolmaster, and at the foot a beggar and a farmer, each of whom had something to say for himself. The King said : “I rule you all !” The soldier fought for all, the doctor healed all, the merchant traded with all, the lawyer—well, I forget ! The parson prayed for all, the schoolmaster taught all, and the beggar begged from all. But the farmer said : “And I feed you all !” That word is true also at the present time, and I must repeat, without agriculture there cannot be any prosperous permanent settlement in the Northern Territory any more than in any other part of the world. The Commonwealth cannot afford to keep barren such a large part of the Continent, and we must hope therefore that steps will be taken by which, while safeguarding the interests of all Australia, the agricultural interests of the Northern Territory will be made to prosper. The following extracts—one from my official report as Curator of the Botanic Garden at Port Darwin for the year 1888, the other from my son, Mr. N. Holtze the present Curator, for 1898—will give detailed particulars as to several cultures of great value, and information on some other interesting points connected with the Northern Territory as a country for tropical and sub-tropical agriculture.

APPENDIX No. I.

Extracts from Report of Curator of the Botanic Gardens, Palmerston, for the year 1888.

I will now turn to a more pleasant subject and describe the progress made in the garden. I annexed to my last report a list of useful plants being then on trial in the garden. I will now take out of this list a number of plants whose products are prominent in tropical agriculture and commerce, and show what success may be expected from their cultivation in the Northern Territory. All the plants with which I will now deal, I may remark, are not in the garden as single specimen plants, but have been grown in quantities. I believe that I am justified if I maintain that what has been done with these plants on hundreds of square yards can also be done on hundreds of acres.

Sugar Cane.—The crop of last season, which, owing to bad season and neglect, was only medium, was given to Mr. O. Brandt, Shoal Bay Plantation, as plant cane. Part of the old cane was then removed, and a small patch, about a quarter acre, fresh cane planted. Ratoons as well as plant cane are looking well.

Rice.—Small patches of the different sorts of rice mentioned in my list gave good returns last season. Larger patches of one-eighth to quarter acre each have been planted of the best six kinds this year, and small patches of the other kinds. Considering the short time since planting and the late wet season, the plants look very promising.

Maize.—Of this crop an area of about ten acres has been planted. This large area was planted to clean the ground, which is horribly infested with weeds, and to prepare it in this manner for other crops. Of course, a considerable saving of Government forage will be made, if no harm befalls the crop. At the present time the crop stands simply magnificent.

Oil Plants.—Peanuts, chufa, sunflower, sesame, castor oil, croton oil, benoil, jatropha oil. All these plants have this year again done so well that even the most exacting critic would not be able to find fault with them.

Linseed.—A very fair sample was grown last season. This year's crop will be sown later on.

Cocoanut Palm.—I have drawn before this your attention to the great value of this tree. Having received the sanction of the Hon. the Minister to make a trial planting on a larger scale, I sent to Singapore for 1,000 nuts, with which about ten acres have been planted. Should this experiment succeed, of which I cannot have any doubt, for nuts planted only last February have already attained a height of eight feet. I shall recommend that the space between the cultivated part of the garden and the sea coast, a piece of about 100 acres, should be gradually cleared from mangroves and jungle, and cocoanuts planted thereon. In years to come this would give a handsome revenue to the Government.

African Oil Palm.—The trees in the garden are doing very well; a number of young plants will be planted out shortly.

Other Useful Palms.—Date palm, Chinese fan palm, Toddy palm, Areca palm, Palmyra palm, Sago palm, Kittool palm, Gomuta palm, Cabbage palm, bastard sago palm, and several other less useful palms all do well in the garden, and most of them have made fair growth.

Fibre Plants.—Ramee, jute, sun hemp, cotton, kapok, Manila hemp, bowstring hemp, Pita fibre. These are all thoroughly successful. It is quite sufficient to mention that ramee shoots four months old are over eight feet high, and that sun hemp sown two and a half months ago is already seven feet high without showing as yet any flowers. Cotton, as well known, only requires cheap labour to make its cultivation here pecuniary a success.

Arrowroot.—Red as well as white arrowroot has always been successful here. The shoots of the red arrowroot (*Canna*) are over nine feet high.

Cassava, or Tapioca.—In good friable soil the growth of this plant is as good as can be seen anywhere.

Dye and Tan Plants.—Areca nut, catechu tree, arnatto, divi divi, logwood, sappanwood, indigo, safflower, gambier, babool tree. All these plants, with the exception of gambier, which has again failed, are growing luxuriantly.

Indiarubber.—Ceara rubber, Para rubber. These two plants have done best of our rubbers. A small plantation of about half an acre has been made in soil not much good for anything else. Indiarubber trees should be planted as forests by the Government, together with other useful exotic trees such as babool, catechu, rosewood, ebony, copal tree, &c., plants of which are doing well in the garden. Of babool tree I may mention that I can supply large quantities of seeds.

Vegetable Wax (*Croton Sebiferum*).—This plant is also proving itself thoroughly suited to the country.

Spices and Medicinal Plants.—Pepper, cinnamon, ginger, turmeric, zedoary, yalanga root, cassia, citronella grass, cardamon, nutmeg, vanilla. Of these plants the three latter have as yet not been very successful, and are not yet grown in numbers. Pepper has been of rather slow growth owing to the dry weather we have this season experienced, but is doing fairly well. All the other spice plants have been quite successful.

Liberian Coffee.—The old trees are doing well, but are in a rather too moist position. A large number of seedlings are getting on well, and I intend to plant half an acre with them.

Assam Tea and Cacao.—The past dry season has been most injurious to those two plants, but I hope that ultimately their cultivation will be a success.

Carob Tree.—I have been told by visitors who have seen this tree in the southern colonies that its growth here is decidedly stronger than there; at any rate the plants stand very flourishing.

The white, green, and black grams are all three doing thoroughly well again. As they ripen their pulse within four months and grow on very indifferent ground, their culture should be of interest to southern farmers.

Millet, cafficorn, sorghum, broomcorn, and dhol, are all growing most luxuriantly.

Voandzeya.—The Madagascar earthbean. This interesting plant grows in great luxuriance, and gives a large crop of edible pulse which it ripens underground like the peanut.

Tobacco.—This plant has of late attracted a great deal of notice, and I will treat it here therefore more particularly. It is now eight years since I sent samples of the leaf tobacco and cigars made from tobacco

grown in the garden to Adelaide ; but owing, no doubt, to the fact that sugar plantations only were at that time considered worth cultivating, no notice was taken of this plant till Mr. O. Brandt commenced to cultivate tobacco at Shoal Bay. As only a small trial was made last year it is premature to say anything as yet about this enterprise ; but there cannot be any reasonable doubt that with proper soil, sufficient moisture, suitable labour, and intelligent management, this plant is bound to be thoroughly successful here. If geographical condition goes for anything the Northern Territory should certainly be considered within the zone of tobacco cultivation ; for, if we consider the geographical, or I may rather say the climatical position, of the countries producing the best tobacco we find that the Northern Territory with 12 deg. occupies a central position so to say between Deli (Sumatra) 4 deg., Borneo 7 deg., Java 8 deg., Manila 14 deg., Jamaica and Portorico 18 deg., and Havanah 22 deg. Tobacco has always done well in the Territory. I may mention that self-sown plants have been flourishing in the garden for the last two years, and they have been pronounced by experts to give as good tobacco as plants grown from imported seed. As the imported seed at Mr. Brandt's plantation was a failure I supplied a quantity of fresh seed, and I hear that many thousands of young healthy plants are ready to be planted out. My own sowing will be made later.

Fodder Grasses.—I did not include these in my list of useful plants, but may be allowed to mention that a very complete collection of grasses and other fodder plants are grown in the garden. Some of the best perennial kinds, such as sorghum halepense, panicum maximum, tri-cholaena rosea, teneriffae, and atropurpurea, are already spreading wild over the country.

Before concluding this report I will endeavour to correct some erroneous opinions about the agricultural capacities of the Northern Territory. People who pretend to know all about it assert that the climate is too dry and that no large areas of good soil can be found. Now we will see how far this is true. Our average yearly rainfall for the last fifteen years is 62½ in. During these fifteen years only once was it as low as 47½ in. (1877-8), and once as high as 75½ in. (1878-9). The remaining thirteen years had, as nearly as possible, average rainfalls. Cochin China, the great ricefield of the east, has exactly the same rainfall and the same length of wet season, and lying on the same degree north as we do south. Now, nobody will assert that Saigon, with its export of half a million tons of rice per annum, is unfit for cultivation. In Jamaica, with a minimal rainfall of about 70 in., we find that for the five years, 1880 to 1884, a rainfall of respectively 55, 60, 58, 48, and 50 inches was registered. Even in Ceylon, with its magnificent rainfall, we find at four registering stations the rainfall considerably lower than our own. These four stations are—Batticaloe, with 58 in. ; Trincomale, with 59 in. ; Jaffna, with 42 in. ; and Pattalam, with 44 in. Four-fifths of this rain falls during the six months from October to April ; still the Ceylon Directory enumerates many plantations for these districts.

Of course, we must not expect impossibilities ; plants requiring an uninterruptedly moist atmosphere, and those growing only at high elevations, we must, for the present, not expect to grow. I use the expression "for the present" advisedly, for what do we really know of the Territory ? It is quite possible, and even likely, that on the borders of the Gulf of Carpentaria a heavier rainfall than here at Palmerston exists. At Glyde's Inlet, and on the Goyder, this is presumed to be the case.

Now to come to our lands. It has been maintained that land fit for agriculture can only be found in patches, and that there are no large areas of good soil in the Territory. Now, this point is in most cases raised by people who have never been more than a couple of miles from Palmerston, or at the most not off the telegraph and railway track, or on the goldfield. To expect in those places large blocks of good land is absurd, for the telegraph line was made on the high stony ground where the road would be passable during the wet season, and mining districts are not

generally blessed with agricultural soil ; but even here are many places, such as the Rum Jungle, the Margaret, Saunders' Creek, the back of the Finnis, &c., where really good soil is found in considerable blocks. But it is not there that we must look for our good land ; it is on the wide plains of our rivers where the tropical rains of centuries have deposited the alluvial soil of the higher country that our agricultural lands are chiefly situated. Here again I must remind you that we really know nothing of our Territory as yet. The few persons who have seen at least parts of the Territory give of some places most glowing descriptions. We hear of the magnificent soils of Florida Station, and Mr. D'Arcy Uhr, who is surely able to speak with authority, tells me that some of the soil of the country lying between the Howley and the Daly rivers equals the best soils he has ever seen in Queensland. But now to come to another point, viz., that our soil is patchy and that much unsuitable soil is found. This I will not deny, in fact in almost every one of my reports I have cautioned against selecting land carelessly ; but what area of land is required for a plantation ? Here and in Adelaide it seems to be thought that 10,000 acres is just about the size for a snug plantation, but how stands this in other countries ? From the Ceylon Directory, of which unfortunately I have only an old copy for 1881, I have been able to compile the following statistics. I find that for the whole island of Ceylon, including the natives' small plantations, there are 2,333 plantations, with an aggregate area of 726,580 acres. This gives an average area of 311 acres per plantation. Only eighty-nine plantations have more than 1,000 acres each ; 818 have each less than 200 acres. Of these plantations 1840 cultivate a total area of 319,015 acres, that is an average of $173\frac{1}{2}$ acres of cultivated land per plantation. This area is cultivated with coffee, tea, cinchona, cocoanuts, cardamon, pepper, vanilla, cocoa, citronella, sugar, and cinnamon—one or several of them on each plantation ; 314 plantations cultivate over 300 acres each, while 329 plantations cultivate under 100 acres each. The remaining plantations (about 1,200) cultivate between 100 and 300 acres each. As I said before, we have good soil, though mostly in patches ; still these patches are sufficiently large to make plantations of equal size to the above. What we want before plantations can be started with success is :—(1) Facilities to obtain suitable land ; (2) Facilities to obtain suitable cheap labour ; (3) Capital to take advantage of the first two conditions ; and (4) intelligent management to use and not to squander the capital. Given these four conditions, and the Territory will surely become a prosperous field for plantation enterprise.

APPENDIX No. II.

Extracts from Report of the Curator of the Botanic Gardens, Palmerston,
for the year ~~1898~~ 1898.

Indiarubber.--This product has excited much attention during the past year owing to the world's supply being unequal to the demand, and I have had several inquiries from local and outside sources for information as well as plants. We have at the present time four different kinds of rubber-yielding plants under cultivation, viz., Ceara rubber (*Manihot Glaziovii*), Hevea rubber (*Hevea Brasiliensis*), Assam rubber (*Ficus elastica*), and Madagascar rubber (*Cryptostegia grandiflora*). Of these the most successful is the Ceara rubber; it is rapid in growth, and thoroughly suited to soil and climate. Our trees commenced fruiting at the age of four to five years, but unfortunately were so damaged by the cyclone that they did not fruit last season. I had, however, a small supply of seed from the previous harvesting, from which a small nursery was reared. **Madagascar Rubber.**--A large scandent or half climbing shrub, also grows very vigorously and well, and has seeded, but the rubber is stated to be of poor quality. *Hevea Brasiliensis* is said to yield the best rubber, but it is a very slow-growing tree, and our plants have not yet fruited. *Ficus elastica* I cannot as yet speak of. I am in correspondence for and expect to receive shortly some other kinds for trial, and there are several native species of trees which well deserve examination for their rubber yield.

Sisal Hemp.--The plants in our nursery beds are out-growing their limits. I had a waste part of the garden prepared, and 2,000 suckers put in the lines. The plants first introduced into the garden have grown into splendid specimens, and produce any quantity of suckers. It has been amply demonstrated that the plant is thoroughly suited to the soil and climate of the Territory. The question whether its cultivation will pay remains alone to be determined.

Rice.--This crop, though beaten down to the ground during the cyclone, recovered, and gave a first-rate yield. This season's crop is now looking magnificent, though no cultivation was afforded after it was planted. As this important cereal is a native of the Territory, it hardly needs any demonstration to prove its suitability to the climate, and as for soil that of the inundated plains of our rivers has been stated on good authority to be similar in quality to Saigon soil, than which for the particular product, no better need be looked for. The cultivation of this crop is altogether different to that of any other cereal, and so are the conditions that obtain. The soil of our rice plot, which could hardly be surpassed for the particular purpose, resembles in the dry state nothing else than brick clay of a poor and forbidding quality, but with 4 in. or 5 in. of standing water on it, it is exactly what is relished by rice.

Cocoanuts were much injured by the cyclone, and about a dozen destroyed by either being blown down or having the heart leaf whipped out. The others have made a very good recovery, and are now in good order, and commencing to fruit again.

Grasscloth.--The plot in the garden is quite a picture, and the plant is thoroughly suited both with soil and climate. It has been reported that a process has been patented by which the gummy matter, which has

hitherto proved an obstacle in the successful production of clean fibre, is removed. If this proves to be a fact, a wonderful impetus will be given to the cultivation of the plant, and, as far as suitability of soil and climate are concerned, this place will not suffer by comparison with any other.

The usual crops are under cultivation this season. Oil plants include peanuts and til seed proved thoroughly adapted to the soil and climate, and which come up year after year self-sown. Starch-producing plants, such as white and also red arrowroot (Cassava), yielding tapioca and tacca a native of this place and producing the South Sea Island arrowroot. Fibre plants, besides the sisal hemp and grass-cloth previously noticed, include bowstring hemp, Mauritius hemp, jute, sunn hemp, and deccan hemp, the three latter named important fibre plants of India being indigenous to this place. Spices include cinnamon, ginger, turmeric, and pepper. Indigo grows naturally as a weed in all unoccupied parts of the garden. A small block is planted with different kinds of cotton—another product which reproduces itself here and there in waste spots as an escape from cultivation. An important plant which I am propagating as fast as possible is a species of cactus (*Opuntia tuna*). Of this I have great hopes as a cattle food and stand-by during droughts in the interior. The importance of the plant consists altogether in its spineless character. Cactus of different species, alias prickly pear, have been tried in various parts of the world as cattle fodder with satisfactory results, but required a lot of preparation to divest them of their prickles before the cattle could touch the stems. The plant under notice is free from this objection, being altogether smooth, and if it should prove adapted for growth in the interior would be both food and water to cattle. As soon as a sufficient stock is worked up I shall distribute it among those likely to give it a fair trial.

Among the new plants introduced during the past year I may mention the following :—Grape Vine.—A variety of the wine grape said to flourish in Timor, and which should therefore prove adapted to this climate. For this plant I am indebted to the kindness and thoughtfulness of C. H. Marsh, Esq. Figs.—Seven varieties ; the growth during the cool season was most promising, and one variety (though quite young) matured a few very fair fruits. Giant Kew Pine Apple.—Said to produce fruits weighing from 10 lbs. to 28 lbs. This makes eleven kinds now under trial in the garden, but so far I have not come across anything superior in flavour to the local kind. Honey Jak.—A fruit very highly spoken of. Assam Tea.—A supply of seed of this variety was obtained, and is now coming over the ground. So far the kinds of tea tried here have proved thoroughly unsuitable to the climate, but I have hopes that the Assam kind may do better. Galangal Root.—A plant allied to the turmeric which thrives so well here. This root is said to realise £17 to £20 per ton in the London market. Kola nut, which is coming into competition with cocoa.

A number of other valuable seeds were introduced, but until plants are produced it would be useless to enumerate them.

JUNGLE SCENE, NEAR PORT DARWIN.

PLATE III.

THE JUNGLE, NEAR PORT DARWIN.

PLATE IV.



HEVEA RUBBER (*Hevea Brasiliensis*).
Botanical Garden, Port Darwin.

PLATE V.

1

ARNATTO (Dye Plant). Two years' growth.
Botanical Garden, Port Darwin.

PLATE VI.

:

TEOSINTE (Fodder Grass). Five months from seed.

Botanical Garden, Port Darwin.

PLATE VII

CINNAMON PLANT. Two years' growth.
Botanical Garden, Port Darwin.

. ATE VIII.

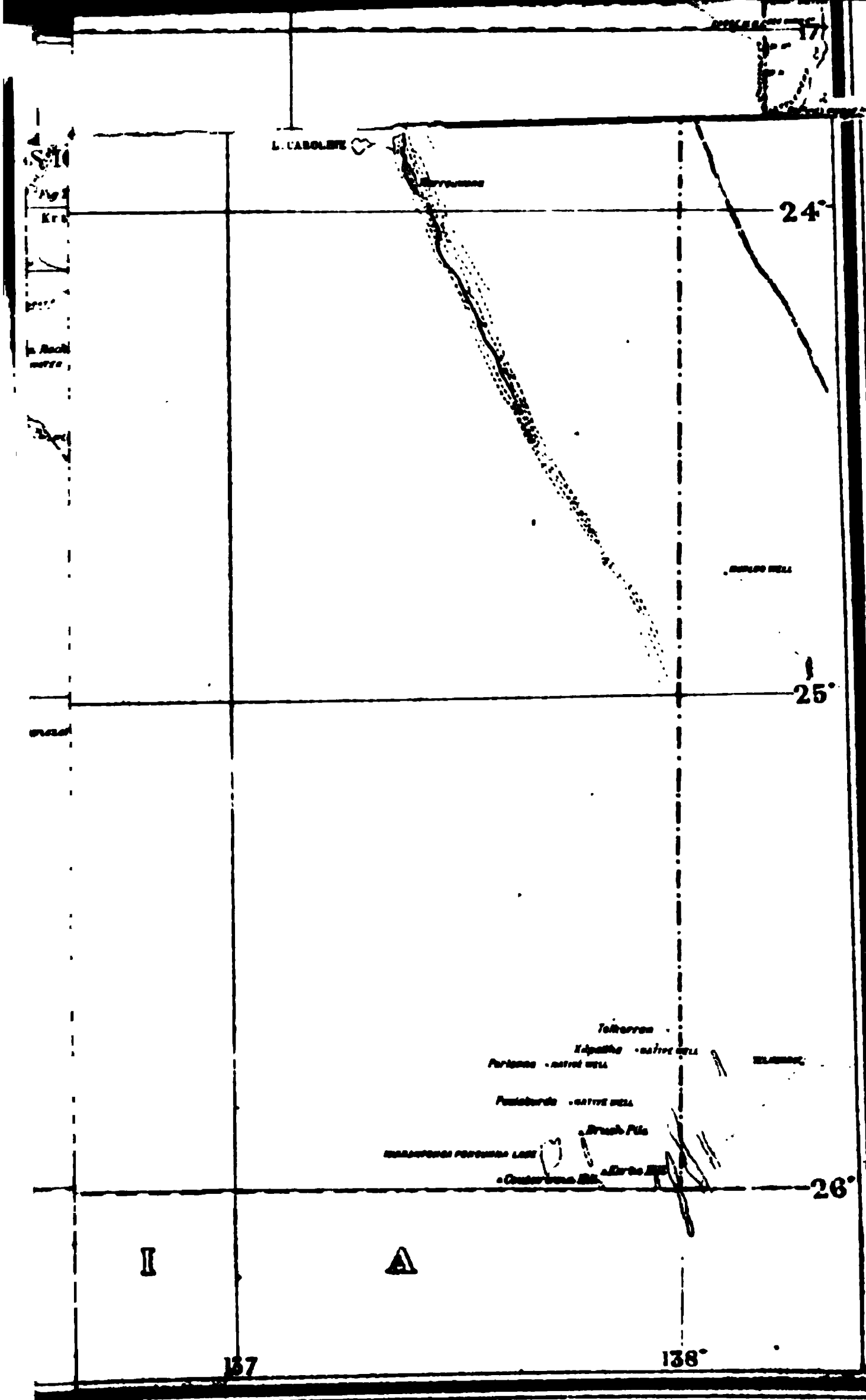
SUNN HEMP (*Crotolaria juncea*). Four and a half months from seed.
Botanical Garden, Port Darwin.

PLATE IX.

RHEA or RAMEE FIBRE. Five months' growth.
Botanical Garden, Port Darwin.

PLATE I.

COCOANUT PALMS. Sixteen months' growth.
Botanical Garden, Port Darwin.



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PROCEEDINGS
OF THE
Royal Geographical Society
OF
Australasia :

SOUTH AUSTRALIAN BRANCH

SESSION 1902-1903.

VOL. VI.

The Council desire it to be understood that in giving publicity to the
Papers read before the Society they accept no responsibility
for opinions expressed therein.

ADELAIDE :
VARDON & PRITCHARD, PRINTERS, GRESHAM STREET,

1903.

CONTENTS.

PAGE.

Annual Address of President...	...	...	...	...	xv.
Annual Meeting, Report of ...	...	...	...	...	xv.
Attendance, Roll of Council Members	...	...	...	...	xiv.
Barker, Capt., Unveiling Monument of	...	...	...	...	19
Battersby, Thos., Diary of ...	...	...	...	...	61
Candidate, Form of Election ...	...	...	...	...	93
Chapman, R. W., M.A., Lecture on Australian Tides	...	...	...	...	3
Chittleborough, J., Old Memories of...	...	...	...	...	59
Council Members, List of ...	...	...	...	...	v.
Council Meetings during 1902-3	...	...	...	...	ix.
Finlayson, Pastor, Reminiscences by	...	...	...	...	39
Hardeman, Thos., Early Colonial Life	...	...	...	...	56
Legacy, Form of ...	...	...	...	...	93
Members of the Society, List of	...	...	...	...	vi.
McLean, Police Experiences by	66
Pedler, Wm., Recollections by	63
Stuart's Tree, Destruction of	31

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 Duncan, Hon. J. J., M.L.C.
 Duncan, W. H., M.P.
 Eitel, Rev. Dr., M.A., Ph.D.
 Fisher, Joseph
 Foster, Hon. R. W., M.P.
 Gall, T. B.
 Gartrell, Jas., J.P.
 George, Miss
 Giles, F. W.
 Gill, Thos., J.P.
 Gill, Harry P.
 Girlestone, Rev. H., M.A.
 Goode, M.
 Goode, C. H., J.P.
 Gordon, John
 Gordon, Jas., P.M.
 Greenwood, W. B.
 Hawker, E. W., J.P.
 Harris, Chas. Hope
 Hack, Clement
 Holden, J. H.
 Holtze, M. J.
 Honeywill, Wm.
 Irwin, Miss
 James, Dr.
 Jenkins, Hon. J. G., M.P.
 Johnson, J. H.
 Johnson, Dr. E. Angus
 Jones, J. W., J.P.
 Joyner, E. V., J.P.
 Jury, G. A., J.P.

Lewis, Hon. J., M.L.C.
 Limbert, E. H., LL.B.
 Lloyd, J. Sanderson
 Magarey, A. T.
 Magarey, W. A.
 Marten, Dr. H.
 Martin, Alex.
 Mayo, Geo. Gibbes
 McDiarmid, A.
 Milne, Wm.
 Milne, Geo.
 Moore, H. P.
 Murray, David, J.P.
 Muecke, H. C. E., J.P.
 Mudie, W. H.
 Newland, S., J.P.
 Newman, E. H., LL.B.
 Neill, A. S., J.P.
 Parkes, J. V.
 Parsons, H. A., LL.B.
 Phillipps, W. Herbert
 Phillipps, R. J.
 Piper, A. W.
 Poole, W. B.
 Riddoch, Geo., M.P.
 Russell, Wm.
 Sanders, C. J.
 Sanderson, J. V.
 Scott, Henry, J.P.
 Simpson, A. M., J.P.
 Simpson, A. A.
 Sholl, L. H., J.P.
 Smith, R. Barr, J.P.
 Smith, T. Barr
 Smith, Sir E. T., K.C.M.G.
 Smith, E. M., J.P.
 Snow, F. H., J.P.
 Sowden, W. J., J.P.
 Stewart, Graham
 Stock, R. A., J.P.
 Stawbridge, W., J.P.
 Stone, Chas.
 Stirling, Professor E. C., M.D.
 Tepper, J. G. O.
 Thomas, Robt. Kyffin, J.P.
 Thomas, J. Edwin
 Toms, S.
 Van Senden, E. W.
 Vicars, Jas.
 Ware, W. L.
 Way, Right Hon. Sir Saml. Bart.
 Waterhouse, H. W.
 Wallis, F. S.
 Whitham, C. L.
 Wilkinson, W. B., J.P.
 Wood, P.
 Wright, G. S., J.P.
 Wilcox, Geo.
 Wilton, C. R., J.P.

PROCEEDINGS
OF THE
Royal Geographical Society
of Australasia

(SOUTH AUSTRALIAN BRANCH).

SIXTEENTH SESSION, 1902-3.

Council Meetings.

July 4, 1902.

Present—Nine.

A letter was received from the Royal Geographical Society, Queensland Branch, inviting the President and Council to a celebration in Brisbane on August 1 next in honor of the eighty-third anniversary of the birth of Hon. A. C. G. Gregory, C.M.G., F.R.G.S. It was decided to reply, thanking the Society for the invitation, and stating that this Society will be glad to be represented, if possible.

A letter was received from His Excellency the Governor's Private Secretary, thanking the Society for the photographs of the Flinders' Memorial ceremonials.

A letter was read from Mr. B. Ingleby, Secretary of the Flinders' Memorial Committee at Kangaroo Island, promising to forward photographs of the memorial there.

July 15, 1902.

Present—Twelve.

The Acting President explained that as a very crowded attendance may be expected at the lecture Mr. F. J. Gillen had promised to deliver, this meeting had been called to consider the necessary arrangements.

SIXTEENTH SESSION.

Resolved that on this occasion the Town Hall be engaged, and that owing to the heavy expenses involved a charge of 1/ admission to non-members should be made.

August 7, 1902.

Present—Nine.

Resolved that the net proceeds of Mr. Gillen's lecture be applied to the purposes of the natives at Alice Springs and Charlotte Waters.

The following presentations were made to the Society:— A large colored map of China, by Rev. Dr. Eitel, M.A., Ph.D.; an atlas of Eighteenth Century Maps, by Mr. A. M. Simpson. Both donors were thanked.

It was resolved, that to provide for the better protection of public monuments the Government of this State be respectfully requested to introduce a Bill into Parliament with as little delay as possible, on the basis of the Ancient Monuments Protection Act, as passed by the English Legislature in 1882, and that the schedule to the Bill should contain, amongst other public monuments, the following: Flinders' Tablet, Memory Cove, Port Lincoln District; Flinders Monument, Stamford Hill, near Port Lincoln; Flinders' Column, Mount Lofty; Flinders' Centenary Tablet, The Bluff, Encounter Bay; Frenchman's Rock, Hog Bay, Kangaroo Island; and that the Council wait upon the Premier to urge their request.

October 9, 1902.

Present—Eight.

The Acting President reported that a deputation of the Council had waited upon the Premier (as resolved at the previous meeting) with reference to the introduction of a Bill for the protection of public monuments and that the Premier stated in reply that he had consulted the Crown Law Officers, and they were of opinion that the existing law was sufficient to meet the case.

It was also stated that the net proceeds of Mr. Gillen's lecture had been used in the purchase of provisions for the natives, and which had been forwarded to the aboriginal depote at Alice Springs and Charlotte Waters.

A letter was read from Mr. W. B. Greenwood, Umberatana, forwarding photos of some aboriginal drawings made on a rock at Wilkindinna Water, Taylor's Creek. He also forwarded

a sample of corundum. It was decided to submit the corundum to the Government Geologist.

Two telegrams were received from Mr. R. T. Maurice, from Hall's Creek, that he had found a run of good waters, but that several camels had died from poisoning; that Mr. Murray was returning with the maps and journals; and that he (Mr. Maurice) was returning with the geological specimens by way of the Ord River.

The Acting President reported that he had wired a reply to Mr. Maurice.

The Secretary stated that he had written to the Council of the Adelaide University, requesting them to grant to this Society the use of one of the University lecture rooms for the delivery of its lectures.

The death of Mr. C. G. A. Winnecke, an honorary member and a well-known explorer, was reported with much regret. He had accomplished much successful work in exploring and mapping out the interior. The Society is also indebted to him for his journal of the Horn Expedition, of which he was leader, and for photographs of the Expedition, and also other contributions.

It was stated that the press had reported the destruction by fire of Stuart's Tree at Chambers Bay, Northern Territory, and that the Government Resident had visited the spot and buried a record of his visit under a slate at the place.

Much regret was expressed by the Council at the loss of this historical tree.

December 12, 1902.

Present—Seven.

A letter was read from the Registrar of the Adelaide University granting the use of a room for the lectures of this Society, if available. To be acknowledged with the thanks of the Council.

A letter was received from the Surveyor-General, Perth, forwarding an additional 100 copies of Mr. L. A. Wells' Journal of the Calvert Exploring Expedition. To be acknowledged with thanks.

A letter was read from Mr. F. E. Benda, forwarding a copy of the "Northern Territory Times," containing a report of the visit of the Government Resident and party to the site of Stuart's Tree, which had recently been destroyed. He suggested that a subscription should be made to erect a suitably inscribed tablet. Consideration deferred.

Mr. R. T. Maurice and Mr. W. R. Murray attended the meeting, and were welcomed by the Acting President who congratulated them on the success of their expedition into the interior, and spoke appreciatively of the splendid work they had accomplished.

Mr. Maurice gave some interesting particulars of their journey, the work they had done, and the results. Mr. Murray showed some copies of native drawings he had found, and produced lists of specimens which had been presented to the Adelaide Museum. Photographs were also shown of the natives met with and of the country passed through.

Resolved that the Council thanks Mr. Maurice and Mr. Murray for their attendance this afternoon, and congratulates them upon the success of their recent expedition.

It also records its appreciation of the very valuable services rendered by them in exploring the interior of Australia.

Both gentlemen replied thanking the Council.

March 13, 1903.

Present—Nine.

The President (Mr. R. Kyffin Thomas), having returned from England, resumed his seat, and expressed his thanks to Mr. S. Newland for his kind services as Acting President during his absence.

A letter was read from the Librarian of the Public Library forwarding the following curios, and stating that his committee would be glad to lend them to this Society, viz.: Pieces of the copper bottom of the "Buffalo;" pieces of Burke's tree (Innaminka); piece of tree from Whatriga Viola Boundary Dam, W.A., having cut in it the letter P, said to be Giles's mark; and also two pieces of Stuart's tree. Accepted, and to be acknowledged with best thanks of the Council.

Letter received from Mr. T. A. Bradshaw, Protector of Aborigines, Alice Springs, forwarding two photographs of the natives (167 in number) who on Christmas Day partook of the provisions forwarded by the Council for their use out of the proceeds of Mr. Gillen's lecture. (To be acknowledged with thanks of the Council.)

Letter was received from Professor E. C. Stirling, M.D., forwarding, at the request of Mr. R. T. Maurice, an old rifle and a sword and sheath which Mr. Maurice had obtained from the natives at Fowler's Bay, who had found them in the mallee scrub. It was thought that they had belonged to some of Eyre's party. Thanks to be given to Professor Stirling.

The President reported that the Commissioner of Public Works had suggested the removal of Frenchman's Rock from Hog Bay to the Adelaide Museum. Resolved that the proposal be approved, and that a more permanent memorial be placed at the spot.

May 26, 1903.

Present—Twelve.

The President (Mr. R. K. Thomas, J.P.) submitted a draft of his annual report.

Resolved that, in the opinion of this Council, the appointment in future of Vice-President shall not necessarily lead to his being appointed to the position of President. Carried.

Other routine business followed.

ATTENDANCE ROLL.

SESSION 1902-3.

COUNCIL MEETINGS HELD, 7.

*R. K. Thomas, J.P.	...	...	...	...	...	...	2
Representative Sir Langdon Bonython	...	...	...	...	...	...	1
S. Newland, J.P.	...	...	...	...	...	...	7
W. P. Auld	...	...	...	...	...	...	7
W. B. Wilkinson, J.P.	...	...	...	...	...	...	6
A. T. Magarey	...	...	...	...	...	...	3
C. L. Whitham	...	...	...	...	...	...	6
W. H. Phillipps	...	...	...	...	...	...	1
A. M. Simpson, J.P.	...	...	...	...	...	...	4
Rev. Dr. Eitel, M.A., Ph.D.	...	...	...	...	...	...	5
A. W. Dobbie, J.P.	...	...	...	...	...	...	6
T. Gill, J.P.	...	...	...	...	...	...	7
Hon. J. Langdon Parsons, M.L.C.	...	...	...	...	...	...	4
E. H. Newman, LL.B.	...	...	...	...	...	...	7

* Absent in England during the greater portion of the session.

Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

ANNUAL MEETING.

The annual meeting of this Society was held on Friday afternoon, June 5, 1903, in the Society's Rooms, 3, State Bank Chambers, Pirie-street. The chair was taken by Robert Kyffin Thomas, Esq., J.P., President.

The minutes of the last meeting were read and confirmed.

Mr. T. Gill, Hon. Treasurer, presented the balance-sheet, which showed that the total receipts for 1902-3 were £158/10/7, and the expenses £158/2/6, leaving a credit balance of 8/1.

The assets of the Society were £2,310/8/1, and liabilities, say, £10.

The President, Robert Kyffin Thomas, Esq., J.P., then delivered his address as follows:

Since the last report, dated May 26, 1902, your Council has held seven meetings, and during the session eight new members have been added to the Society: Mrs. Reid Baird, Miss Irwin, Messrs. Jas. Vicary, Charles Willcox, W. L. Ware, J. H. Johnson, Joseph Fisher, and C. R. Wikton.

OBITUARY.

The Society has to record with deep regret the death of one of its earliest promoters, Mr. Thomas Magarey, who always manifested a warm interest in its operations. It has also sustained a great loss by the death of one of its honorary members, Mr. C. G. A. Winnecke, F.R.G.S., F.R.A.S., who had rendered great service to geographical science, not only as an explorer, evidenced by the numerous expeditions he commanded, but also by his numerous and excellent surveys, and a large number of maps he had prepared, geological and trigonometrical, which are models of accuracy and of intricate detail. Mr. Winnecke's desire was to equip and lead a small expedition to the east and north-east of Arltunga and other

unexplored regions to search for the remains of the Leichardt expedition, but ill-health compelled him to abandon the project. His valuable collection of native weapons has, through the generosity of Mr. R. T. Maurice, been presented to the Public Museum.

LECTURES.

Three lectures were delivered before the Society during the session. That by Mr. F. J. Gillen, S.M., on July 24 last, on "The Life of a Central Australian Aborigine" was an elaborate and deeply interesting one. The general interest which had existed for some time previously in the expeditions of Professor Spencer and Mr. Gillen (upon which his lecture was based) was especially manifested in the crowded attendance at the Melbourne Town Hall, where Professor Spencer had just previously lectured on the same subject. Your Council, therefore, in anticipation of a very full attendance here also, determined to engage the Adelaide Town Hall for this lecture, and to depart from their usual rule of free admission by making a small charge on this occasion, in order to defray the additional expenses they incurred. The lecture, which was of great interest and illustrated by numerous lantern slides of the natives (in their corroborees and various other ceremonies), and also by phonographic records of the songs of various tribes, attracted the largest gathering we have had since the inception of the Society, the Town Hall being so crowded that arrangements were subsequently made with Mr. Gillen to again deliver the same lecture in order to accommodate the numbers who were unable to obtain admission. This Mr. Gillen did some two months later at the Adelaide University. This meeting also proved a great success, attracting a very full attendance. The proceeds of Mr. Gillen's lecture at the Town Hall, after payment of the expenses incurred, left a considerable surplus, which was applied to the purchase of food and clothing for the native tribes in that part of Central Australia which the two explorers had visited. These bounties, upon which the natives at Alice Springs (167 in number) appear to have enjoyed themselves to their heart's content, have just recently been gratefully acknowledged by them through their Protector, Mr. T. A. Bradshaw, S.M., who enclosed two photographs of the natives assembled (male and female) in full enjoyment of the good things provided.

A second and very interesting lecture was delivered by Mr. R. W. Chapman, M.A., in conjunction with Captain Inglis, on the "Tides of Australia," with numerous lantern illustrations, at the Adelaide University, and to a full attendance.

This was a sequel to a former lecture on "The Tides of South Australia."

Your Council at this time were led to ask the Council of the Adelaide University if they could grant to this Society the use of a lecture-room for its future papers, a request which, I am gratified to say, was acceded to, and which has been gratefully acknowledged by this Council on your behalf.

The third lecture was delivered at the University on October 31 last by Mr. J. W. Jones, J.P., on "The River Murray," with lantern illustrations, which was much appreciated by a large and attentive audience.

THE LIBRARY AND MUSEUM.

Your Council are glad to be able to say that the Library and Museum are increasing year by year in extent and interest. The more regular issue of your own Proceedings has had a stimulating effect upon the exchanges with other Societies, and the Transactions of the Scientific Societies in other parts of the world form a very valuable part of the collection. In addition to these Transactions, forty-one volumes have been added to the Library, several of the works bearing upon the early history of the State. The Museum has also been enriched by valued presentations of historical value. These presentations have been acknowledged by your Council, and full particulars relating to them will be published in the Proceedings.

Your Council look forward with hope to the further enrichment of your collections by gifts under the different sections embraced by the objects of your Society.

DEFACEMENT OF PUBLIC MONUMENTS.

In view of the frequent statements as to the mutilation and defacement of various public monuments, as, for example, the Flinders Tablet at Encounter Bay and the Column at Mount Lofty, your Council waited upon the Hon. the Premier in September last requesting that a Bill might be introduced in Parliament for the protection of public monuments from these repeated acts of vandalism.

The Premier then informed your Council that the Crown Law Officers whom he had consulted on the subject had pointed out two clauses in the Criminal Law Consolidation Act, which would provide an effectual remedy in every such case of conviction. Following upon this the Premier had large posters printed warning the public of the penalties incurred by persons mutilating or defacing public monuments. The posters were

sent to the police officers in the districts in which monuments exist, and have been exhibited in the locality of each monument.

DESTRUCTION OF STUART'S TREE.

Your Council received an intimation early in October last that the tree in Chambers Bay which John McDouall Stuart had selected and marked with his initials as a record of his progress, had been wantonly destroyed by fire. This intimation was fully confirmed subsequently by the receipt of a copy of the "Northern Territory Times," stating that Mr. Justice Dashwood, the Government Resident, had left Port Darwin for Chambers Bay, together with six other gentlemen, Messrs. Lawrie, Brown, Holden, Price, Pender, and Kirkland, in order to visit the spot and to report the result of their investigations. This tree, which was situated in a valley near the sea coast at Chambers Bay, was selected by John McDouall Stuart to mark the spot at which he accomplished with safety what has been ably described as one of the most notable and daring exploratory feats on record, in conducting his party successfully from Adelaide through country much of which was until then unknown, to the shores of the extreme north. Upon his arrival there Stuart selected a large tree in a valley near the sea coast, upon which he had his initials cut—J. M. D. S.

At 1 ft. south from the tree is buried, about 8 in. below the ground, an air-tight tin case, in which is a paper with the following notice:

"South Australian Great Northern Exploring Expedition.

"The exploring party, under the command of John McDouall Stuart, arrived at this spot on the 25th day of July, 1862, having crossed the entire continent of Australia from the Southern to the Indian Ocean, passing through the centre. They left the City of Adelaide on the 26th day of October 1861, and the most northern station of the colony on 21st day of January, 1862. To commemorate this happy event they have raised this flag bearing his name. All well. God save the Queen."

It is appropriate to mention here the names of the party, which was constituted as follows: J. McDouall Stuart, leader; W. Kekwick, second in command; F. W. Thring, third in command; W. P. Auld, assistant; S. King, J. Frew, J. W. Billiatt, Heath Nash; F. G. Waterhouse, naturalist; J. McGorrery, shoeing smith.

Of these the following are still alive: Wm. P. Auld, a respected member of your Council; F. W. Thring, S. King, H. Nash, J. W. Billiett, and J. McGorrery.

On the next day, July 26, 1862, Stuart planted the Union

Jack on a tree, from which he had stripped the branches. This ceremony took place on the shores of Chambers Bay (Van Diemen's Gulf), a bay which he so named in honor of Miss Chambers, who had presented him with the flag.

While the expedition conducted by the Government Resident was unsuccessful in obtaining any clue to the natives who perpetrated the outrage, they found the truth of the report fully confirmed. The tree had evidently been purposely burnt, and quite recently, as the ashes were quite fresh at the time of their visit. They left the following pencilled record of their visit enclosed in a tin, which they buried deeply in the spot occupied by the tree: "Visited tree, found burnt to ground, deposited this in tin, also a bent sixpence, 1883, Queen Victoria's reign, September 25th, 1902." (Here followed the signatures of the party).

I need not say that the disappearance of this great historical landmark must be always a matter of regret, not only to Australians, but to all who are interested in the great work of exploration.

The full details of this visit, with a brief account of the finding of the tree by an exploring party in 1885, will be recorded in the next volume of our Proceedings.

It may be of interest to mention that the Public Library Board has lent to this Society a block and slab from the tree in question, which formed part of the late Mr. Winnecke's collection.

MEMORIAL TO CAPTAIN COLLET BARKER.

On Wednesday, the 21st January, 1903, the residents of Mount Barker celebrated the unveiling of a monument to the memory of Captain Collet Barker, which was erected on a site granted by the local District Council at the eastern end of Druid's-avenue, in the township of Mount Barker.

In response to an invitation from the local committee to the Council members, the Acting President (Mr. S. Newland), and Messrs. W. P. Auld, W. B. Wilkinson, Thomas Gill, and T. Coward attended the ceremony on behalf of this Society. A report of the proceedings will appear in the volume of this year's Transactions.

ABORIGINAL ROCK PAINTINGS.

In July last an important discovery was made in the valley of the South Para River, of two caves containing rock paintings. These drawings are no doubt the work of aboriginals of an extinct tribe that lived in the vicinity of Adelaide. It is somewhat remarkable that these are the only paintings known

to exist near Adelaide and that they had escaped observation for so many years. It is hoped that the owner of the land on which the caves are situated—Mr. T. Barrett, of One Tree Hill—will take steps to preserve these interesting relics of a bygone race.

ACROSS AUSTRALIA.

In April, 1902, Mr. R. T. Maurice equipped a party for the purpose of traversing the continent from south to north, with the object of examining some of the extensive areas (regarding which little is known) lying between previous explorers' tracks. Starting from Fowler's Bay, the party consisted of Messrs. R. T. Maurice, W. R. Murray, and H. Hauscheldt, an Afghan camel driver, and several black boys, with a caravan of 14 camels. First visiting the little-known country north-west from Lake Phillipson, they proceeded towards the Everard and Musgrave Ranges, and then, by way of Ayers' Rock and Mount Olga, Lake Amadeus was crossed towards its western end. Continuing past the Cleland Hills of Mr. Tietkens, and Eva Springs of Colonel Warburton, the very poorest of desert country was encountered until nearing Sturt Creek, near the 19th parallel. The trip in the main was an arduous one, much heavy sandhill country being encountered, and the country throughout being very drought-stricken. At Tanami, a large rockhole, located by Mr. A. Davidson in 1890, most of the camels were poisoned with gastrolobium, and having been 12 days without a drink five succumbed, and others which recovered were afterwards of little use. This necessitated the abandonment of a lot of gear, and in consequence the return to Adelaide was made by boat from Wyndham instead of (as was originally contemplated) by way of other little known portions of the Northern Territory. Some very valuable waters were, however, found, and much useful information gathered, which will be found embodied in the two journals, which were kept for this Society and the Government respectively. A valuable collection of native implements, &c., was made and presented to the Museum, and Mr. Maurice is at present in the country north from Nullabor Plains collecting for a similar purpose. The Government has promised to follow the usual procedure of laying the Journals of Mr. Maurice before Parliament, with a view to their being printed.

ARCTIC EXPLORATION.

On September 23, 1902, the Norwegian Polar Expedition under Lieut. Sverdrup, in Nansen's old ship, the Fram, which sailed in 1898, arrived at Havanger, on the west coast of Norway in September last, and report having traversed the un-

known icefields westward of Ellesmere Land, in the Arctic regions.

Lieut. Sverdrup, when embayed in Kane Bay for the winter of 1898-9, had to abandon his original purpose of circumnavigating Greenland and delimitating its unknown eastern boundary from Independence Bay down to Cape Bismarck. His winter excursions through Ellesmere Bay induced him to attempt the vast unexplored area to the west of that region, accessible via Jones Sound. This he set out to do in August, 1899, when he parted from Peary, in Etah.

Although Lieut. Peary has returned once more without having reached the Pole, his expedition has not been inglorious. He has at least succeeded in outstripping all previous American Arctic explorers by penetrating to latitude $84^{\circ} 17'$, and the expedition has been the means of clearing up much that was but ill-understood. Highly prized relics of former expeditions, as well as rare animals, geographical, mineralogical, and meteorological data were secured.

It was further announced in November last that a Norwegian expedition had been formed, led by Captain Amandsen, with the express object of carefully exploring Greenland and King William Land, and also to try and locate the north magnetic pole, and, if possible, solve the problem of the North-West Passage, to navigate which has been the dream of explorers since the days of the lamented Sir John Franklin.

Still another Arctic expedition is now being fitted out by Mr. Ziegler, under the leadership of M. Fiala, who returned from his last voyage after an unsuccessful effort, but is now preparing for another and more ambitious dash northwards. He expects to start for Tromsø in June, taking with him two years' provisions.

At the last annual meeting an allusion was made to a rumor, which had emanated from two or three sources, of the massacre of Andree and his fellow voyagers, by the Esquimaux. This has, unhappily, been fully confirmed by trustworthy authorities—one of these a Church of England clergyman, the Rev. Mr. Farlies, who arrived at Winnipeg from York, in North-West British Territory, and who brought authentic information of the fate of the late explorer Andree and his companions. Two years ago, in a spot 800 miles north of York, a party of Esquimaux, under the leadership of old Huskie, saw Andree's balloon alight on a plain of snow in that vicinity, about 200 miles north of Cape Churchill. Three men emerged from the balloon, and some of Huskie's people approached out of curiosity. As they did so one of Andree's people fired a gun. This was regarded as a challenge, and

almost instantly the natives fell upon the three explorers and killed them.

Everything pertaining to their outfit was taken to the homes of the natives on the north border of the Arctic Ocean. Old Huskie himself gave this information with evident reluctance to the agent of the Hudson's Bay Company. Mr. Farlies says there is little room for doubting the tale as frequent reports have since come of strange implements which the northern natives possess, telescopes being particularly described. It is held that if Andree had made friends he would have been safely conducted north, and would eventually have reached civilization. The Hudson's Bay Company recently sent another party in search of the balloon and its outfit, and hopes to have further and still more conclusive evidence shortly.

THE ANTARCTIC EXPEDITIONS.

A Scottish expedition, commanded by Captain Colbeck, R.N.R., in the good ship *Morning*, and fully equipped with scientific instruments and appliances for survey, sounding, meteorology and dredging, sailed from London in July last en route for Lyttleton, New Zealand, whence, after refitting, she sailed in search of the *Discovery*. It was the intention of the commander of the *Discovery* (Captain Scott) to leave records at various points, Cape Adair, Possession Island, Coulinan Island or Wood Bay, Franklin Island, and Cape Crozier; and Captain Colbeck was to search these places in order to find the records. Captain Colbeck was also to examine all the coast between Cape Adair and Cape Crozier, with a view of finding the *Discovery*, and then rendering her any needful assistance, and effecting a transfer of coal and provisions for her use. In the event of his not finding the *Discovery*, Captain Colbeck was instructed to form depots, consisting of two months' provisions, at Cape Crozier, Wood Bay, and Cape Adair and after this to make his way back to Lyttleton, there to await instructions.

The *Morning* arrived at Lyttleton on March 25, 1903, from the Antarctic regions and reported having found the *Discovery* on January 23 in winter quarters near to Cape Armitage, in latitude $77^{\circ} 48''$ S.

Despatches that were forwarded to the President of the Royal Geographical Society, Sir Clements Markham, by Captain Colbeck, refer to a sledge journey towards the South Pole by Captain Scott, together with Dr. Wilson and Lieutenant Shackleton, who, in the face of great difficulties and hardships, involving the loss of most of their dogs, yet succeeded in win-

tering nearer the South Pole than any of their predecessors, viz., 82° 17" S., and in discovering the existence of vast stretches of land towards the South Pole in a series of lofty mountains. This, according to the cable messages in the Press, was regarded by Sir Clements Markham as "by far the most important geographical result of the Discovery expedition, and, indeed, of any expedition hitherto conducted in the Antarctic."

Appeals have been recently made to the British Government for a grant of £40,000, in order to cover the cost of another trip by the *Morning*, and to enable the *Discovery* to accomplish another summer's work.

Two other expeditions have been carrying on their investigations in the Antarctic regions—the German Antarctic expedition, in the *Gauss*, under Dr. V. Drygalski; and the Swedish expedition, in the ship *Antarctic*, under Dr. Otto Nordenskjöld.

The detailed reports of these investigations will afford much valuable information of hitherto unexplored regions.

Arrangements were recently reported to be in progress for a Scottish National Antarctic Expedition, under the leadership of Mr. Bruce. The *Scotia* was being especially fitted out to carry on oceanographic research from both the physical and biological standpoints, and was to contain two great drums, each to contain six thousand fathoms of cable for trawling and trapping in what is supposed to be the deepest part of the Antarctic Ocean. It is Mr. Bruce's intention to proceed to the Sandwich Group, and then push southwards to as high a southern latitude as possible.

RECORDS OF EARLY HISTORY.

Your Council are glad to be able to report that gratifying success has attended their efforts to acquire records of the early history of South Australia. The appeal issued to pioneers by the committee, consisting of representatives of the Geographical Society, the Old Colonists' Association, and the Australian Natives' Association, was responded to by a considerable number of our earliest settlers. Your Council were able to publish in the last volume of *Proceedings* a very valuable collection of reminiscences, which brought vividly into notice the trials and difficulties of the enterprising colonists who laid the foundations of the State's present prosperity. They have still on hand a number of diaries and other records, which will add to the interest and value of future volumes. They hope that the records may be enriched by further valuable contributions.

LIBRARY ADDITIONS.

The following proceedings, publications, and maps, &c., have been received since the last report, and which the Society would gratefully acknowledge to the donors thereof, viz.:

Proceedings from the Royal Geographical Society, London, and the Geographical Societies of Liverpool, Manchester. Tyne-side; and Scottish Society, Edinburgh.

Proceedings and Library Catalogues of the Royal Colonial Institute and the Imperial Institute, London; Journal Royal Institution, Cornwall; and Reports from the Royal Dublin Society and Royal Society, Edinburgh.

Proceedings from La Societe Geographie and Geographie Commerciale, Paris, Havre, Tours, Marseilles, Toulon, Neuchateloise, Schleswig-Holstein, Finland, Zurich, Lima, and Milan; Geographesche Mittheilungen-Giessen and Academie der Natur forscher Halle a Saale. Seventy six valuable publications from Dr. B. Blomberg, Academy of Antiquities, Stockholm.

Reports from the Geographical Societies of Victoria, New South Wales, and Queensland, the American Geographical Society, School of Geography (New York).

A valuable series of publications from the Smithsonian Institution, Washington; from the American Academy of Arts and Sciences and American Museum of Natural History, New York; Minister for Department of Agriculture, Washington; also report for 1902 of Missouri Botanical Garden, from W. Trelease, Esq.; Transactions of Academy of Science, St. Louis, M.; Geographical Society of Grand Pacific, San Francisco; Philadelphia Museum and Canadian Institute; Geological Survey and Royal Society of Canada, Ottawa; Parliamentary Library Canada; and Boston Society of Natural History; Angustana College Library, Rock Island, Illinois; Parliamentary Library, Ottawa; Transactions Wisconsin Academy and Natural History Survey.

Proceedings Royal Asiatic Society, Calcutta; Madras and Ceylon; Madras and Ceylon Museums and Penang Gazette, Penang.

Also Proceedings of South African Society, Cape Town; Polynesian Society, Wellington and New Zealand Institute, from Sir James Hector, Wellington, K.C.M.G., M.D., F.R.S. N.Z.

Transactions Royal Societies South Australia, Victoria, New South Wales; Australian Museum, Sydney; also fourteen volumes Proceedings Royal Society, Tasmania, from Alex. Morton, Esq., Hobart; Science of Man, from Dr. Carroll, Sydney; also from University of Montana.

Volume "Paving the Way," by S. Newland, Esq.; 3 vols. "The Map of Africa by Treaty;" 2 vols. Sells' Dictionary of the World's Press; 1 vol. Bibliography, by Thos. Gill, Esq.; Just's Australia; Capper's South Australia (1838); Handbook for Australian Emigrants (1839); Address to Governor Gawler (1841); Australian Gazette and Colonial Register (1845); South Australian Almanac for 1847; Colonel Light's Plan of Adelaide; and Worsnop's History of Adelaide, by F. W. Giles, Esq.; and Bulletin's Queensland Ethnography, by Dr. W. E. Roth, Cooktown.

Reports of Department of Mines, Land and Agricultural Surveys from the Minister at Adelaide, Victoria, New South Wales, Queensland, New Zealand, and Perth.

Valuable Atlas of Eighteenth Century Maps, presented by A. M. Simpson, Esq.; large colored map of China, by Rev. Dr. Eitel, M.A., Ph.D.; map of Western Australia, by Minister Lands and Survey, Perth.

The following presentations were made to the Museum:—Three photographs of native rock drawings and specimens of corundum, by W. H. Greenwood, Esq., Umberatana; photographs of John McDouall Stuart's grave at Kensal Green, London, by the President, R. K. Thomas, Esq.; photograph of Frenchman's Rock, Hog Bay, from the Hon. R. W. Foster; two photographs of the natives at Alice Springs, by T. A. Bradshaw, S.M., Alice Springs.

An old rifle and an old sword, presented by R. T. Maurice, Esq., through Dr. E. C. Stirling; also two pieces of the copper bottom of the ship Buffalo; a piece of tree known as Butter's Tree, Innamincka; a piece of a tree from Whatriga Wicta, Boundary Dam, W.A., with letter "P" cut into it, said to be Giles' mark; and two pieces of John McDouall Stuart's tree, placed in charge of the Society on loan by the Library, Museum, and Art Gallery Committee.

PAPERS

READ BEFORE THE

**Royal Geographical Society
of Australasia.**

— — —
SIXTEENTH SESSION, 1902-3.

— — —
SOUTH AUSTRALIAN BRANCH.

Australian Tides.

By R. W. CHAPMAN, M.A., F.R.A.S., and CAPTAIN INGLIS.

[Read August 28, 1902.]

It so happened that the early observations made to study the laws governing the periodic rise and fall of the ocean level, which we call the tide, were made on the shores of the North Atlantic, where we now know the nature of the tidal waves is particularly simple. It is, perhaps, fortunate that this was so, because the great primary causes were shown so obviously connected with their effects that there could be no mistaking the relation between the two. It is true Galileo, practically acquainted only with the small rise and fall in the land-locked Mediterranean, ridiculed the idea of the existence of any connection between the moon and the tides. The supposition to him was as chimerical as the relation between the moon and the weather, and he wondered at a man of Kepler's ability giving countenance to the suggestion. But if Galileo had lived on the Atlantic shore, and had seen the huge spring tides consistently, month after month, following the new and full moon, and the comparatively small neap tides coming at regular intervals between, it is probable that he would have been forced to think that the connection must be something more than mere coincidence. Newton, and, following him, Laplace, investigating the subject in the light thrown by the discovery of the laws of gravitation, clearly and thoroughly showed us the nature of the forces which, due to the sun and moon, tend continually to set the waters of the ocean in a state of oscillation. Since their time, so far as that is concerned, there has been little either to add or to amend. Their investigations, in conjunction with the observed character of the tides, and in particular with the magnificent verification their principles have received from the application in recent years of the methods of harmonic analysis to tides of the most complex nature in all parts of the world, have for ever set at rest the question as to whether the moon has any influence upon the tides.

It is, however, one thing to know the nature of the forces which periodically act upon a body of water, and quite another thing to determine the nature of the waves which those forces would produce. If we had a shallow tank containing water, and some one moved one corner of the tank slightly up and down in a regular way, the water of the tank would be set into vibration in consequence. If we saw the movements of the water, and then noticed the man tilting the tank at the corner, we should naturally conclude that the tilting of the tank was the cause of the oscillations, particularly if we noticed

an agreement between the times of the two movements. But it would be an exceedingly difficult problem, given the knowledge of the character of the up and down movement exerted at the corner, to determine or predict the exact nature of the waves that would pass any particular point in the tank. If the tank were irregular in shape, and the movements of the water hindered by obstacles placed in it, the problem might well defy the skill of our ablest mathematicians. The analogy applies to the tides, and it is precisely this difficulty which causes writers to shine forth at intervals and tell us that the accepted views as to the nature of tidal movements are absolutely and wholly wrong. It would be possible to form quite a considerable list of new theories as to the cause of the tides which have been brought out within the last fifty years; theories, alas, which blossom but to fade. The position is this—We are able to calculate the magnitude of the forces which act upon the oceans with great precision. If the earth were covered with an ocean of uniform depth it would be possible to calculate the exact nature of the waves which those forces would produce. But the actual distribution of the water is so irregular, and its depth so far from uniform, or from following any simple law in its variations, that the computation of the nature of the wave produced in any particular portion of the ocean under the action of the tidal forces seems almost to lie outside the region of mathematical possibilities.

In the analogy we have just used it is clear that the nature of the waves set up in the tank will depend both upon the shape of the tank and the depth of water in it. So we might expect that the different oceans and bodies of water subjected to the action of the tidal forces will have produced in them tidal oscillations of very divers characters. This we know to be the case. The tidal waves of the Pacific, or those which roll past the southern coast of Australia, are very different both in height and in other characteristics from those of the North Atlantic or those which impinge upon our western coast from the Indian Ocean. We still have—as a general rule, although there are exceptions—the highest tides occurring when the sun and moon are acting together and the smallest waves when they are acting in opposition, but the relationship between the moon and the tidal motions is frequently by no means so obvious as it is at London. There is more than one harbormaster in Australia who will tell you that it is impossible to predict the tides at his port at all, because they are controlled almost entirely by the wind. Even in so reputable a publication as the Bulletin of the American Geographical Society, a writer only this year tells us that the moon has nothing whatever to do with the tides. He tells us, for

instance, taking for comparison two islands which are mere isolated specks in one vast expanse of water, that at Apia, in the Pacific, the average rise is 3 ft. per tide, whilst at Honolulu it is only 1.3 ft. per tide. "Why," he says,* "is Honolulu laid under a kind of prohibitory tariff and Apia granted free trade in the article of salt water? It would also be intensely interesting to know by what means Apia has the 'pull' over Honolulu; the fact that it receives a double supply would seem to indicate that the moon has the power of discriminating between the two places! The facts of the case being so, the inference is quite clear that we must look elsewhere than to the moon for the cause of the difference." One is tempted to flippantly reply to this that it would be just as reasonable to argue that because Adelaide frequently gets temperatures well over 100° in the summer time, and Hobart seldom gets over 90° , therefore it cannot be the sun that is the cause of the summer heat; we cannot imagine the sun possessed with the power of discriminating between the two towns. The idea the writer probably has in his mind is the old erroneous text-book notion that the tides are caused by the water being pulled up towards the moon. He asks, for instance, why it is that the moon can lift the water whilst it cannot even raise a feather. But, as a matter of fact, it is the horizontal forces set up by sun and moon which can alone produce motion of the water, and if such forces set a body of water swinging the amount of the oscillation will not in general be the same at all points.

In a very well-known and very pretty experiment some fine dry sand is scattered over a thin metal plate supported at its centre. By rubbing a fiddle bow along its edge the plate is set vibrating. But it does not vibrate uniformly all over. There are lines along the plate, commonly called nodal lines, where the plate is perfectly still, while the intermediate segments are in violent vibration. The dry sand, displaced from the rapidly moving portions of the plate, settles along the nodal lines and maps the whole plate out in a series of symmetrical figures. So it is when a basin of water is set into oscillation. The level of the water is not altered to the same extent at every point, and there will in general exist nodal lines along the surface where the movement will be very slight indeed, while there will be other places where the motion is a maximum and the rise and fall of the water much greater than elsewhere.

The right way to look upon the tides is to regard them as oscillations of the waters of the ocean produced by periodic

* Alexander Brownlie. in the Bulletin of the American Geographical Society, February, 1902, p. 20.

forces due to the attraction of the sun and moon. Those forces whose periods harmonise with the natural time of swing of the body of water will produce the biggest effect. Most people have experienced the annoyance or amusement, according to their frame of mind, caused, when listening to the strains of a musical instrument, by the tinkling of an ornament or gas globe every time a particular note is struck. There is only one especial note that will do it, but every time that note is sounded it sets the article in question, or the air within it, into violent vibration. Its natural vibrations harmonise with those given by the musical note. The illustration is a familiar example of the general phenomena of resonance, and precisely similar phenomena may take place with all manner of vibrations as well as with those of sound. Every body of water, for example, has a natural period of swing, depending upon its size and depth, in which it will oscillate if displaced from its mean position and allowed to swing until it comes to rest, as we may see exemplified in an ordinary hand basin. If the water is acted upon by a series of periodic forces, which keep time, so to speak, with the natural period of swing of the water, the resultant oscillations will be much more violent than will be the case if there is no harmony between the timing of the forces and the natural swing of the water.

These considerations we shall see all exemplified in the behaviour of the tides round our coasts as we proceed, and they may help us to understand, in a general way, why it is that along one coast one component of the tide producing forces seems to dominate the others, whilst in another place an entirely different one has the pre-eminence.

The tides along the coasts of Australia are due to three tidal waves which impinge upon our coasts from the Pacific, Southern, and Indian Oceans. The general form of the front of these waves is shown by the map of co-tidal lines on Plate I. The number attached to each line indicates the time in lunar hours after the moon's transit at Greenwich, when it is high water at all points through which the line passes. The three waves do not appear to have any very obvious connection one with the other, and as they differ largely in essential characteristics, it is quite possible that they are in the main three quite independent oscillations, although the wave of the Southern Ocean must necessarily be considerably affected by each of the others.

The tidal wave from the Pacific reaches New Caledonia and the northern tip of the North Island of New Zealand at 8 hours. Two hours afterwards it reaches the south-east corner of New Guinea, is close to the coast all along the eastern shore of Australia, just tips the south-east corner of Tasmania,

and at the same time impinges on the western coast of the South Island of New Zealand. The rapid progress the wave makes along the deep water between New Zealand and Australia is indicated by the form of the co-tidal line for 9 hours. The spring range at New Caledonia is a little over 3 ft., whilst at most places round the coast of New Zealand the spring range lies between 6 and 12 ft. There are two places along the shores of New Zealand where there is a notable local increase in range, i.e., along the shores of Golden and Blind Bays in the South Island, and Manukau Harbor in the North. At these places the range runs up to 14 ft. Around the whole coast there are two nearly equal tides in the lunar day, the diurnal inequality of time and height being comparatively small, that of time usually much less than half an hour, and of height less than 9 in. According to Captain Goalen,* "the terms springs and neaps do not apply to the New Zealand tides in the ordinary sense (except at Auckland); that is, that the highest tides do not occur at a regular interval after new or full moon, but may happen at any time during the lunation, depending principally on the position of the moon with regard to its parallax and declination. At Wellington, where the mean range of tide is little more than 3 ft., the variations of height, apart from those produced by wind or other local causes, apparently depend principally on the moon's parallax." These remarks are probably intended to apply particularly to the three places, in addition to Auckland, which have been specially examined by him, i.e., Wellington, Lyttleton, and Port Chalmers. At the same time the moon's control is decided enough. The luni-tidal interval, or interval of time between the moon's transit and high water, follows a very regular law, and at the three ports the higher of the two daily tides follows the moon's superior transit when the moon's declination is north and the moon's inferior transit when the moon's declination is south, both tides being equal for two or three tides when the moon crosses the Equator.

Along the east coast of Australia the spring range is generally somewhere between 3 and 6 ft. south of Brisbane, north of which the range is increased, as shown on the map. The mean range for all tides at Fort Denison, Sydney Harbor, for eighteen years ending 1898 was 3 ft. 3.8 in. At the entrance to the Brisbane River the mean spring range is 6 ft. 1 in., and the mean range at neaps is 3 ft. 9 in. The biggest tides on this coast occur as the wave proceeds up Broad Sound, Queensland, where the range is as much as 28 ft. at spring tides. The diurnal inequality is pronounced all along the

* Tables for finding time and height of high water at New Zealand ports, Admiralty Office, 1896.

coast. At Sydney the greatest difference which occurs in the heights of the two daily high waters is about 1 ft. 9 in., and at Brisbane it is about 3 ft.

The wave from the Southern Ocean reaches the outlying points all round the coast at about 3 hours after the moon's passage at Greenwich, its front being practically parallel with the general coast line all round. It takes nearly five more hours to traverse the shallows of the gulfs and straits to reach Adelaide and Port Wakefield, and eight and a half more hours to reach Port Augusta, at the head of Spencer Gulf. Old co-tidal charts were accustomed to show the tidal wave as proceeding along the south coast of Australia from east to west, and then spreading out into the Indian Ocean, but the determination of the co-tidal hours at various points along the coast-line does not appear to warrant this. For instance, the co-tidal hour at Portland Bay is 3.0, at Port MacDonnell 2.6, at Kingston 2.8, at Eucla 2.1, at King George's Sound 2.8. This does not look like a progression from east and west, but rather as though we had to do with a north and south swinging of the body of water between Australia and the Antarctic Continent. The amplitude of the wave on the coast is everywhere small, the range being generally between 3 and 6 ft., except where its height is increased by its passage up the gradually narrowing Spencer and St. Vincent Gulfs. We have already dealt with the peculiarities of this wave as they are exhibited along the coast of South Australia in a previous paper read before this Society.

In that paper we gave a return of the mean level of the sea at Port Adelaide for ten years. This is brought up to date in the following table :

The mean monthly values show a very well-defined annual tide producing high water in June. This is probably largely due to the direction of the prevailing winds at different times of the year.

The wave from the Indian Ocean brings to the south-western corner of the continent an exceedingly small tide, the maximum range round Cape Leeuwin, and up as far north as Geraldton along the coast, being less than 3 ft. In the extreme north, however, Java and the other islands of the East Indian Archipelago form a barrier to its progress. The consequence is, as is apparent from the map, that as the wave proceeds up the deep water between these islands and the north-western coast it is passing up a gradually contracting area just as when entering such an opening as Spencer Gulf. The result is that the height of the tide is considerably increased as soon as we get beyond North-West Cape. Where this effect is still further increased by the passage of the wave into

RETURN OF THE MEAN LEVEL OF THE SEA AT PORT ADELAIDE FOR TWENTY-ONE YEARS ENDING DECEMBER 31ST, 1902.

	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	Sum.	Mean.
January ..	4 209	3 781	4 225	3 932	4 801	4 917	4 129	4 202	3 717	4 417	3 743	3 875	4 245	3 875	3 971	3 928	4 448	4 280	4 130	3 926	4 821	87 572	4.1666
February ..	3 705	4 054	3 668	3 872	4 302	3 781	4 083	3 757	3 663	3 875	4 824	3 708	3 633	4 278	3 859	4 010	4 031	4 053	4 085	3 783	4 499	82 483	3.9253
March ..	3 984	4 095	3 426	4 000	3 832	4 358	3 967	4 082	3 856	4 271	4 196	3 748	3 931	4 003	4 436	4 427	4 114	4 380	4 361	4 213	4 361	85 980	4.0942
April ..	4 345	4 358	4 103	3 756	4 165	4 114	3 916	4 043	4 052	4 230	4 144	4 367	4 285	4 211	4 571	4 463	4 375	4 707	4 304	4 354	4 130	88 993	4.2376
May ..	4 774	4 629	4 208	4 102	4 387	4 330	4 150	4 267	4 117	4 146	4 351	4 595	4 431	4 148	4 532	4 137	4 155	4 760	4 178	4 749	4 157	91 302	4.3476
June ..	4 313	4 717	4 948	4 480	4 176	4 071	4 562	5 110	4 928	4 480	4 334	4 365	4 828	4 417	4 452	4 369	4 425	4 480	4 739	5 055	4 506	96 355	4.5881
July ..	4 635	4 282	3 928	4 076	4 017	4 851	4 783	4 194	4 225	4 771	3 984	4 000	4 944	4 749	4 517	4 558	4 749	3 982	4 536	4 296	3 974	91 849	4.8733
August ..	4 073	4 452	4 283	4 562	4 542	3 793	4 125	4 557	4 192	4 333	4 157	4 223	4 228	4 829	3 881	4 520	4 082	3 955	4 709	3 947	3 660	89 103	4.2425
September ..	4 413	3 694	3 957	3 826	4 284	4 480	3 910	4 380	4 412	4 741	4 098	4 667	4 123	4 452	3 893	4 236	4 252	3 780	3 867	4 357	4 687	87 214	4.1530
October ..	3 956	3 940	3 943	3 698	4 292	4 163	3 658	4 389	4 575	3 875	3 649	4 194	4 234	4 045	3 762	4 213	4 079	3 857	3 917	4 318	3 877	84 539	4.0800
November ..	3 954	4 051	3 470	3 602	4 233	4 071	3 838	4 114	4 307	3 917	4 183	3 684	4 159	3 695	3 427	4 120	4 016	4 180	3 647	4 240	3 970	82 878	3.9466
December ..	3 963	4 479	4 459	4 175	4 013	3 861	3 750	4 392	4 110	4 646	4 115	4 036	3 776	4 423	3 964	3 764	3 884	3 963	4 304	4 147	4 093	86 312	4.1108
Sum...	50 314	50 532	48 623	48 081	51 044	51 390	48 871	51 487	50 154	51 002	48 728	49 462	50 821	51 124	49 265	50 743	50 610	50 337	50 777	51 380	50 035	1054 530	50.2156
Mean.	4.193	4.211	4 032	4.007	4.254	4.232	4.073	4.291	4.179	4 250	4.060	4.122	4.235	4.260	4.105	4.228	4.217	4.195	4.231	4.283	4.169	87 901	4.185
Mean height of barometer at Adelaide ..	30.047	30.060	30.075	30.121	30.075	30.066	30.112	30.068	30.036	30.111	30.054	30.022	30.067	30.070	30.079	30.076	30.088	30.084	30.055	30.090	30.094		

gulfs along the north-western coast, we get by far the biggest tides in all Australia. In Collier Bay and King Sound the spring range is well over 30 ft., running in extreme tides up to as much as 41 ft.

Tide curves, as traced on the self-recording tide gauges at Hobart, Fremantle, and Port Darwin, are exhibited on Plates II., III., and IV. respectively.

At Hobart the diurnal inequality, both in height of the two daily tides and in the time intervals, is seen to be very marked. The general sequence of the tides is Higher High Water, Lower Low Water, Lower High Water, Higher Low Water. When the moon is near its extreme north or south declination the range of the smaller of the two tides becomes very small, and sometimes it entirely disappears, leaving only one tide in the day. The inequality in the time intervals for the day is often greater than $2\frac{1}{2}$ hours, and the maximum diurnal inequality in height of the two tides is about 1 ft. 6 in. The maximum range of tide on the curves shown is about 4 ft. 6 in.

The curves given from the Fremantle tide gauge are rather remarkable. They show but one tide a day for the portion of the year for which the curves are given, although there is just a suspicion of a smaller second tide in some cases. The greatest range for the nine days only amounts to 17 in. Observations made by officers of the Admiralty survey upon these tides are discussed by Sir William Thomson in "Nature," October, 1878. At some seasons of the year the diurnal tides appear to quite predominate over the semi-diurnals, as in the case in the illustration. At other seasons, however, the diurnal wave almost disappears and leaves only a small semi-diurnal tide with less than a foot rise and fall. The observations of the Admiralty survey showed a very great difference in the mean level of the sea at different times of the year. This was so great that the low waters in March and April were generally higher than the high waters in September and October. An harmonic analysis of these tides showed that the biggest of the component waves were those giving only one tide a day, due to the declination of the sun and moon, whilst the ordinary solar and lunar semi-diurnal tides, which form at most places by far the biggest of the tidal constituents, are here relatively unimportant. They are very small, having a semi-range of .04 and .06 ft. respectively, so that they almost share the peculiarity which we found to characterise the Adelaide tides, that the semi-diurnal tide, due to the sun, is about equal to that due to the moon, whereas in most places, of

course, the moon's effect is very much greater than that of the sun.

At Port Darwin we have tides of an entirely different order. The main spring range is here about 24 ft., but is sometimes as great as 30 ft. A tide gauge of Lord Kelvin's pattern was set up by the South Australian Government about 1890, and good records are available up to 1897, since when it has been dismantled waiting the building of a new jetty. We selected the last good records obtained for a whole year's tides, and subjected them to a harmonic analysis, with the results given in the table below. The records show a very marked diurnal inequality, especially at the low waters, the sequence throughout the year being High High, High Low, Low High, Low Low. In the year examined the greatest difference in height between the two high waters occurred in January and December, and amounted to 4 ft. 9 in. In April, however, there was a difference in the height of the two low waters of as much as 10 ft. A peculiar result generally takes place in March. Towards the end of the month the two high waters gradually get more and more nearly equal to one another, and the two low waters more and more unequal, until on one day the high low water is just as deep as the two equal high waters, and the record shows one continuous high tide. In September something similar occurs, when the high low and low high merge into one tide, but the water, of course, does not remain at the same level for so long a period as in March, when three tides merge into one. The analysis has shown the existence at Port Darwin of a remarkably large annual tide, the water on this account standing nearly 2 ft. higher at the end of the summer than it does at the end of the winter. Such a large tide is very much greater than could possibly be produced by astronomical causes, and at Kupang, on the Island of Timor, to the north, the annual tide, according to the researches of the Batavian Observatory, is very small, having an amplitude of only 3 cm. It would appear that it is to a large extent a meteorological effect, depending upon the low barometrical pressure which usually exists in the summer time and the comparatively high pressure in the winter, and also upon the direction of the prevailing winds. We have obtained from the Adelaide Observatory the average results for barometer readings at Port Darwin, the readings being taken at intervals of three hours for twenty years ending 1901. They are as follows:

			Mean Readings for 20 years.	Mean Readings for 1896.
January	...	...	29.765	29.757
February	...	...	29.769	29.759
March	...	...	29.814	29.808
April	...	...	29.863	29.849
May	...	...	29.917	29.973
June	...	...	29.945	29.966
July	...	...	29.966	29.969
August	...	...	29.956	30.005
September	...	...	29.931	29.978
October	...	...	29.892	29.948
November	...	...	29.841	29.868
December	...	...	29.793	29.854

These show a remarkably well-defined annual wave of pressure. When the atmospheric pressure is highest in the winter time the sea in the neighborhood of Port Darwin is loaded with a pressure a little greater than 14 lb. per square foot more than it has to carry in the height of summer. This must obviously have a great influence in producing the effect under notice.

But the major portion of this annual tide is probably due to the remarkable persistency with which the winds in this region blow from the north-west in the summer time and from the south-east in winter. As the harbor at Port Darwin opens towards the north-west the winds thus tend to pile the water up in the harbor in the summer and to reduce the level of the water during the other half of the year.

RESULTS OF THE HARMONIC ANALYSIS OF THE RECORDS OF THE TIDE GAUGE AT PORT DARWIN (LATITUDE $12^{\circ} 23' S.$, LONGITUDE $130^{\circ} 37' E.$) FOR THE YEAR BEGINNING NOON JANUARY 1, 1896.

Component.	Amplitude.	Phase (K).	Component.	Amplitude.	Phase (K).
	Feet.			Feet.	
S_1	0.16	169°	Q	0.27	312°
S_2	3.44	193°	U	0.39	110°
S_4	0.05	127°	P	0.44	1°
S_6	0.01	184°	K_1	1.91	336°
M_1	0.05	315°	T	1.53	70°
M_2	6.56	144°	R	0.83	97°
M_3	0.05	26°	K_2	1.02	204°
M_4	0.13	279°	2SM	0.17	13°
M_6	0.06	167°	MS	0.16	30°
N	1.04	121°	Sa	0.97	76°
L	0.41	216°	Ssa	0.54	58°
Y	0.48	141°	MSf	0.47	29°
O	1.14	313°	Mf	0.128	333°
	0.14	197°	Mm	0.045	284°

The results are stated in the notation of the British Association.

A very interesting attempt to map out the actual character of the ocean oscillations under the action of the tidal forces has recently been made by Mr. R. A. Harris, of the United States Coast and Geodetic Survey. He considers that, as a rule, the ocean tides are so great that they can be produced only by successive actions of the tidal forces upon oscillating systems, each having, as free period, approximately the period of the forces, and each perfect enough to preserve the general character of its motion during several such periods were the forces to cease their action. Just as a succession of properly timed taps may impart a considerable swing to a pendulum, so, if the natural time of oscillation of a large body of water coincides with the periodic action of the tide producing forces, a large oscillation will be the result. Mr. Harris has accordingly attempted to map out the oceans of the world into areas of water each of which would swing in harmony with some of the tidal forces, the natural character and period of oscillation of each area being computed from its dimensions and depth. The results of his investigation, as far as they affect the explanation of our Australian tides, are shown on Plate V. The firm lines on the map show the boundaries of the oscillating areas. The dotted lines show the nodes or places where the motion would be a minimum. The Roman numerals indicate the co-tidal hours, i.e., the Greenwich lunar times of semi-daily or of daily high water, as the case may be. The first map on the plate shows the areas of the Southern and Indian Oceans, which would naturally oscillate synchronously with the tidal forces, producing two tides a day. It will be noticed that the stretch of ocean between the southern coast of Australia and the Antarctic continent is marked out as one of those areas, having a nodal line running east and west about midway between the two coasts. This mass of water is of such a size and depth that it would naturally tend to swing so as to keep time with the sun's efforts to set it moving, but not with the moon's efforts. Thus, although both sun and moon are continually acting upon it, and the force exerted by the moon is, of course, the greater of the two, yet it is the sun's action to which it naturally responds, and the tides produced in consequence will be solar and not lunar. This body of water would tend to swing under the sun's action, so as to produce high water along our coast at 6 hours (solar time). Another oscillating area stretches between the southern coast of Australia, the south-eastern shores of Africa, and the Antarctic continent between longitudes 65° and 115° . This, on the

other hand, swings under the action of the moon's forces, with two nodal lines, one of which falls near Cape Leeuwin. This would give high water at 3 hours (lunar time) along our southern shores. The theory thus supplies a remarkable explanation of the facts we brought before this Society in our last paper as the results of our analysis of the Port Adelaide tides. We found that the tides of our southern coast were almost unique in the fact that the solar tides were just about equal to the lunar, whereas at most places the effect of the moon on the tides is very much greater than that of the sun. According to the explanation here given this is due, then, to the fact that the body of water to the south of us resonates, as it were, to the sun's action, not to that of the moon, and the sun's effect is magnified in consequence. If this theory be upheld the tides along the southern coast of Australia are due mainly to the oscillation of the two areas mentioned, the areas overlapping and the second one responding to the moon's influence, gives us our lunar tides. It will be seen that the lunar oscillations would produce high water in the Great Australian Bight three hours before the solar tide, when the sun and moon are in conjunction. This also agrees with what we actually found to be the case at Port Adelaide. The nodal line of the second area lying so close to Cape Leeuwin further accounts for the remarkably small range of the tide along the southern portion of the West Australian coast. At all places near a nodal line the rise and fall of the water would, of course, be very little. The second map on the plate shows the areas which would naturally oscillate in such a way as to produce only one tide a day. The main body of the Northern Indian Ocean swings in such a way with a nodal line in the middle. This produces diurnal tides on the western coast of Australia, which accounts for their predominantly diurnal character, as shown by the records of the Fremantle gauge. The diurnal wave thus set up in the Indian Ocean would be propagated into southern waters, and travelling round our southern coasts would give rise to the diurnal inequality of the tides which there exists. Unfortunately, our actual knowledge of the ocean tidal movements is practically confined to the knowledge of movements along the shores, and we are unable to test the theory by an examination of the rise and fall of the ocean level in deep waters. But the theory certainly supplies a remarkable explanation of the main peculiarities of the tides along our western and southern shores.

During recent years the application of the methods of harmonic analysis to tidal records has enabled successful predic-

tions to be made for tides of the most complex character in various parts of the world. The old methods for the construction of tide tables applicable to North Atlantic ports would be quite useless over a large portion of the Australian coast. According to the theory of Laplace, we may regard the actual tide effect at any place as the result of the combination of a number of perfectly regular waves, each of which separately would produce high or low water at constant intervals of time. The effect of the combination of these regular waves on the same sheet of water is to give us the apparently irregular wave we actually observe. Harmonic analysis enables us to calculate the magnitude of each one of these separate component waves. When this has been done at any port the height of the water at any future time may be foretold by finding the compound effect of all the separate waves at that instant. This is a purely mechanical operation, which may be most simply done by the aid of a machine specially constructed for the purpose. Lord Kelvin's Tide Predictor is the best known machine of the kind, and is in use by the English Government. The United States Coast and Geodetic Survey have another machine. Unfortunately, such machines are very expensive, costing well over £1,000, and consequently their construction is not justifiable unless it can be used for the prediction of tides at a large number of ports. In order to enable the tides of Port Adelaide to be predicted, Captain Inglis devised a simple and cheap machine, with which the tides have for the past four years been successfully foretold twelve months in advance. Before these tides were harmonically analysed their prediction by ordinary methods was quite impossible, except near the springs.

The essential principles of Captain Inglis' machine are as follows: A number of thin wooden templets are cut, each in the form of a sine curve, representing the various tidal components (Plate VI.). These waves are of different lengths, the length of each component wave bearing the same ratio to the solar semi-diurnal as its angular speed does to 15° . The templets are all fixed side by side, with their planes vertical and parallel, being supported on a carrier, which can be moved forward in the direction of the waves by means of a rack and pinion underneath. A number of vertical plungers rest in a transverse line, with their lower ends resting on the tops of these templets, and are moved up and down as the curves progress forward. The motions of the plungers are then compounded by means of a fine wire passing over pulleys at the top of each one, and under fixed pulleys between adjacent ones. This wire is connected to an indicator, which

moves up and down alongside a vertical scale, thus marking the height of the compound wave at any instant.

The wire passing over the plungers is an endless wire, going round a pulley on the indicator, and round a larger pulley at the other end of the line of plungers. This larger pulley is attached to a plate, which is movable backwards and forwards by means of a fine screw. This gives a means of adjusting the height of the indicator, and also of allowing for the effect of the annual and semi-annual tides. The rise or fall due to these long period tides is treated as constant for fourteen days, and the screw adjusted so as to alter the height of the indicator by the proper amount at the end of each such interval. In front of the frame of the machine, between it and the indicator, is a vertical slide, which is moved forward at the same rate as the carrier, and carries a sheet of paper, on which the tidal curve may be traced if required (Plate VII.).

Each templet is fixed in the carrier in proper relative position, according to its phase at the start, as determined by previous harmonic analysis. When the handle of the machine is turned the carrier, vertical slide, and clock are set in motion, and the indicator shows the height of the tide at the time shown by the clock, and the curve may at the same time be traced on the vertical slide.

There are three or four templates to each component and three carriers. When one of the carriers has been worked forward far enough it can be disconnected from the others and connected up again at the other end. The curves are again placed in their respective grooves, and by means of a suitable attachment butted close up to the preceding ones. In this way the process is made continuous.

The setting of the curves can easily be checked at every month, to see that there has been no slipping.

The machine involves no expensive construction, and enables a year's tides to be predicted expeditiously, and, as experience has proved, with quite sufficient accuracy.

The tidal work at present being done in Australia consists mainly in the recording of tides, and in a few cases of the preparation of tide tables. Along the whole of the northern, western, and southern coasts of Australia, however, we have at present only seven self-recording tide gauges. There is one at Port Darwin, there are two at Fremantle, and the others are at Port Adelaide, Port Pirie, and Port Augusta, in South Australia, and at Williamstown, Victoria. On the Tasmanian coast there are two—one at Strahan and the other at Hobart. To the energy of Mr. Russell we are indebted

for the publication of the records from three tide gauges in New South Wales—one at Fort Denison (Sydney Harbor), one at Ballina, and one at Newcastle. In Queensland there are four gauges—two on the Brisbane River and two on the Fitzroy. Tide tables are published a year in advance, giving times and heights of high and low water for Brisbane and Port Adelaide, and in the Victorian and Tasmanian Almanacs the times of high and low water are predicted for Melbourne and Launceston, but we are not aware of the systematic publication of tidal predictions at any other ports. The American Tide Tables contain predictions for Melbourne, Sydney, and Adelaide. In answer to enquiries, we have been informed by the harbormasters at two ports that no attempt at prediction is made, because the tides are so irregular and appear to be more influenced by the wind than anything else. The probability is, however, that a proper application of analysis to these records would show, just as it has done in other ports where similar opinions were once held, that the irregularity is really governed by complex but regular law, and that the dependence upon the wind is more fanciful than real. The same thing used to be said of the Port Adelaide tides.

Now that we have federation established it would undoubtedly be a great gain to us in this matter if the whole of the tidal work for Australia were controlled from one central office. At present each State does a little in the way of securing tidal records, but as a rule very little use seems to be made of these, and, while each State continues to act independently of the others we cannot well expect to get a proper methodical treatment of the whole available records. What we want is a definite general scheme of procedure which, as it is gradually worked out, will, in the course of time, give us more and more complete information about our tides and tidal currents. Such a scheme might well embrace the gradual extensions of the records, their systematic analysis, and regular prediction, the work for the whole of Australia being carried out on a uniform plan. In the securing of records the method of the Indian Government commends itself. There, at certain ports of first-rate importance, tide gauges are established permanently. At other ports the tides are gradually being recorded by tide gauges, which are set up for five years, a period long enough to ensure that the analysis of the curves will give a very perfect knowledge of the tides of that port. When a tide gauge has done its five years' duty at one port it is shifted on to another. As the records are systematically analysed, in this way a very perfect knowledge is gradually being obtained of the tides along the Indian coasts. Such a proceeding re-

commends itself as an eminently reasonable one, and might well, one would think, be to some extent copied along our own coasts with advantage. The work of systematic analysis and regular tidal prediction could undoubtedly be done much cheaper and very much better from a central federal office. The value and interest attaching to a publication giving predictions for the principal ports of the Commonwealth would be very much greater than can possibly attach to one issued by a single State. The commercial importance of the proper conduct of this work, in the interests of the shipping, the fact that it is the basis of all hydrography and of all charts, and the scientific importance of having a proper systematic method of work whereby our knowledge may be continually added to, are all weighty reasons in favor of the alteration. At present all such work is under the control of Marine Boards and other bodies of very different degrees of competency. Some have an interest in the work, some have not. That it would be a great improvement to substitute for this one proper efficient central control is beyond question.

Memorial to Captain Collet Barker, at Mount Barker.

UNVEILING OF MONUMENT.

The unveiling of the Captain Barker Memorial recently erected by the residents at Mount Barker took place on January 21, 1903. There was a large attendance, including members of the District Council and Committee, Mr. C. Bom (who erected the monument), Mr. T. Coward (of Adelaide), and the following members of the South Australian Branch of the Royal Geographical Society of Australasia, who drove up from Adelaide: Mr. Simpson Newland (the Acting President), Mr. W. P. Auld (who accompanied McDouall Stuart's exploring party), Mr. Thomas Gill (Hon. Treasurer), and Mr. W. B. Wilkinson. Apologies for non-attendance were received from the following members of the Society: Mr. R. Kyffin Thomas (President), Sir J. Langdon Bonython (Vice-President), Hon. J. L. Parsons, M.L.C., Rev. Dr. Eitel, and Messrs. A. T. Magarey, W. Herbert Phillipps, C. L. Whitham, A. M. Simpson, A. W. Dobbie, and E. H. Newman (Joint Hon. Secretary), and also from Mr. C. R. Wilton ("Autolycus" of the *Courier*). The scholars of both the local State and Catholic schools, totalling about 250, were marshalled for the occasion by Mr. E. Kennedy (head teacher of the former institution), and a fife and drum band, composed of past and present members of the State school, and under the leadership of Albert Marks, played suitable selections. The weather, which had been unpropitious in the morning, gave evidence of clearing up at noon, but the high wind continued, and when the proceedings were about half over, a smart shower fell.

The proceedings were initiated by Mr. F. C. SMITH, J.P., who stated that as the Secretary of the Memorial Committee he had been deputed to hand the monument over to the District Council of Mount Barker, the Chairman of which body he would ask to immediately perform the unveiling ceremony.

Mr. H. A. MONKS, J.P., in complying with the wish of the committee, said that on behalf of the District Council he had great pleasure in accepting the custody of the handsome memorial to Captain Barker, who, so they were told, was the first white man to set foot on the fertile valleys as well as the rugged hills at Mount Barker, and who lost his life at the Murray Mouth in performing his duties. He (the speaker)

had from the first been in sympathy with the movement for the erection of a monument to the memory of the officer who had been of so great service to South Australia, and after whom the town and district of Mount Barker were named, and he was very much surprised that the work had not been done years ago by the very early settlers at Mount Barker. The memorial before them had been erected through the untiring efforts of Mr. F. C. Smith—(Hear, hear)—who had on several occasions previously endeavored, though unsuccessfully, to accomplish his laudable object. Mr. Smith would feel proud to see so many present and particularly the children, to witness the unveiling ceremony. The speaker was sure that the residents would all look upon the possession of the monument with a very great deal of pleasure, and he hoped the younger ones present at least would be induced thereby to read the history of Captain Barker. (Hear, hear.)

Amidst cheers, Mr. Monks removed the veiling from the memorial, on which read the inscription:

ERECTED
to the memory of
CAPTAIN COLLET BARKER,
of H.M. 39th Regiment of Foot,
who discovered the District and
Mount which bear his name.
He was killed by the blacks on the
30th of April, 1831, while endeavoring
to ascertain the communication
between Lake Alexandrina
and Encounter Bay.

Mr. SIMPSON NEWLAND said that he had very great pleasure in being present that afternoon to assist in the interesting ceremony—a ceremony which the whole State was looking forward to with much interest, and one the like of which would be repeated on other occasions in honor of other and similar eminent men to Captain Collet Barker. (Hear, hear.) During the year that has just passed the South Australian Branch of the Geographical Society had commemorated the centenary of the illustrious Flinders by the inscription and placing of tablets to his memory on Mount Lofty and Rosetta Head; while the inhabitants of Kangaroo Island had also honored the name of the great explorer by the erection of a similar memento on their coast. The people of Mount Barker were beginning the new year exceedingly well by erecting so beautiful a monument to the distinguished man whose name was so intimately connected with their charming town. A great poet had said that “a thing of beauty is a joy for ever,” but the memorial of

a great and good man who lived and died for duty's sake was more than this—it was an object-lesson for all time; it appealed to the tender sense of beauty and, perhaps even more deeply, to that sterner feeling of doing right for right's sake, whatever the end might be. Such a man was Captain Collet Barker. (Applause.) He fought bravely among the ranks of war; he escaped its perils to die not the less a hero's and a soldier's death in the cause of peace, and his name must for ever be enrolled among the heroes who had given their lives for the Empire on the virgin shores of Australia. The speaker congratulated the people of Mount Barker in that they have made Captain Barker's name and fame so peculiarly their own, and he lamented that Encounter Bay, so rich in incidents of early history, and claiming the spot where the captain yielded up his life, could no longer point to a landmark—Barker's Knoll—bearing his name. On April 17, 1831, from the summit of Mount Lofty, Captain Collet Barker first gazed upon Mount Barker; on the 30th of the same month—only thirteen days later—he lay dead by the hands of ignorant savages on the edge of that restless surf whose thunder they must almost hear from where they stood that day, and which would remind them of the untimely fate of him whose name was linked with their town. Nearly seventy-two years had passed since Captain Barker so died; yet his memory was still green, and would ever be kept green by such works as that raised and uncovered that day by a grateful people. Mr. Newland proceeded to give particulars of Captain Barker's early manhood, and of his coming to and appointments in Australia (particulars which appear elsewhere in this article), after which he read the following copy, made in Sydney by Mr. T. Gill, of the original report to the Colonial Secretary by Dr. Davis of the tragic death of his companion, Captain Barker:

“Sydney Harbour,
“H.M. Col. Schooner Isabella,
“May 19, 1831.

“Sir—A very painful and melancholy duty devolves on me of communicating to you, for the information of His Excellency the Governor, the loss of Captain Barker, 39th Regiment (late Commandant at King George's Sound). His Majesty's colonial schooner Isabella, having on board the military and Crown prisoners which formed the late establishment at King George's Sound, sailed from Princess Royal Harbour on the 29th March, and anchored on the west side of St. Vincent's Gulph on the 13th ultimo. She was again under weigh for the eastern shore on the next morning; and in the afternoon of the same day Captain Barker commenced his survey of that coast for the purpose of ascertaining if there were any outlet for the

waters from Lake Alexandrina on that side of the gulph, and having most minutely examined the coast from Cape Jervis in latitude $35^{\circ} 37''$ to $34^{\circ} 36''$ (a distance of 61 miles) without success), he resolved, before quitting the gulph, to proceed from the bay (twelve miles north of Cape Jervis) overland to the mouth of the inlet in Encounter Bay, as he thought by this plan (should there be any opening to the west of the inlet in Encounter Bay) he would most certainly meet with it. He left the vessel in the forenoon of the 27th ultimo, accompanied by Mr. Kent, C.C., two soldiers, and two prisoners of the Crown, taking six days' rations for the party. He told Mr. Hanson (the master of the vessel) and myself that he was inclined to think he should not be absent more than four days; if the weather, however, would not admit of the vessel remaining on the eastern shore till his return an additional supply of rations was to be landed at the place of his disembarkation, and when the weather became moderate the vessel could again approach and take them aboard. On the 2nd May (being the sixth day since the party started) a good look-out was kept for the two fires on the beach (the concerted signal with the party), and as the wind was veering round to the westward and no appearance of the party, Mr. Hanson, at 3 p.m., ordered the boat out, and was in the act of getting the provisions put into her, when the signal from the beach was made. The boat was immediately sent on shore, and five of the party came on board with the melancholy tidings that they had not seen Captain Barker since the morning of the 30th April. It appears the party reached the west side of the inlet on the evening of the 29th ultimo and on the following morning at 10 o'clock Captain Barker said that he had made up his mind to swim across, and requested Mr. Kent to tie his compass over his head, and ordered a little spirits to be got ready against his return. Captain Barker was indisposed for some days before he left the vessel, and suffered a good deal from pain of stomach and bowels on his journey, but his zeal in the discharge of his duty would not allow of personal consideration. It was the general impression of the party that he would be a short time away, that he would only ascend the opposite sandhills, make his observations, and then return. He swam across the inlet (200 yards wide at low water) in three minutes, and was about five minutes more ascending the sandhills, which were computed to be 60 ft. perpendicular, and on reaching the top he looked around him for about a minute and then disappeared. The party saw no more of him. About two hours and a half having elapsed, and no appearance of Captain Barker, Mr. Kent, with two of the party, was going to the

cooking place to prepare some soup for him against his return, when a shouting was distinctly heard, which the two men were confident was made by a white man. It was of a moaning character, and as one in great agony and coming from the direction of the sandhills over which Captain Barker descended. They were then about 200 yards from the inlet, and considered the shouting to be half a mile beyond the sandhills. Mr. Kent expressed himself of a different opinion as to the direction of the sound, and told them he heard similar shouting in the morning. About 1 o'clock a very large fire was made about half a mile east of the sandhills over which Captain Barker went, and several smaller fires were observed in different directions on the same side of the lake, much 'cooeing' was heard, and five natives were seen on a bank to the north east of the sandhills, who soon separated, and shortly afterwards four more were observed on the beach on the opposite side, as if coming towards the party. They, too, quickly disappeared. About an hour afterwards a large party of natives was observed moving from the direction the captain was last seen in and taking a northerly course. Two or three were frequently seen on the bank near the large smoke watching the motions of the party. At 4 p.m. great numbers of natives were proceeding from that part of the peninsula (opposite to the party) apparently round the arm of the lake towards the place where the large smoke proceeded from. The party remained at the point of the inlet anxiously awaiting Captain Barker's return, and as night came on all hopes that he would attempt to cross till morning were relinquished. They then retired a short distance for shelter, and observed during the early part of the night frequent lights passing in various directions on the opposite shore. At sunrise on the 1st May, Mr. Kent and Lance-Corporal Machugh returned to the point, fired two shots in quick succession and a third one five minutes afterwards. They remained there for a quarter of an hour, and, no answer being returned, retired to the rest of the party. About an hour afterwards some natives were seen on the sandhills over which Captain Barker passed, watching the manoeuvres of the party. Whenever any of the party exposed themselves the natives disappeared, and when the former concealed themselves the others returned. Five and twenty hours having elapsed, the circumstance of his being naked, the shouting which was heard, the directions he had given to have a little spirits ready for him against his return, the suspicious conduct of the natives, their numbers, frequent 'cooeings,' and fires—all these combined forced on the minds of the party the conviction that Captain Barker was either murdered or else de-

tained by the natives at the east side of the inlet. There was no possibility of procuring wood to construct a raft by which the party would be enabled to ascertain the reality of the fate of Captain Barker, and the only man who could swim across would not attempt it alone without arms, the natives being on the look out, and, as he thought, prepared to receive him. It was then resolved by the party to return to the vessel, previous to which they proceeded to the place where they bivouacked on the night of the 29th with Captain Barker, and having packed up in a keg a few pounds of biscuits, his shirt, and a memorandum which, with his shoes, socks, and trousers, and a bottle containing another memorandum were deposited under the fire-place, four sticks being placed (a yard and a half asunder) in form of a square, and in the centre the above were buried. On the stick at the north side (the direction supposed the captain would come in) was cut "Look B.L." (meaning look below); the tops of the sticks were cut with knives, so that if they were knocked down he might still perceive that they were intended for some particular mark. The above particulars of this mournful event were received from the party, and for a minute detail of particulars I beg to refer His Excellency to Mr. Kent. No time was lost after the boat was hoisted in in directing the vessel's course towards Encounter Bay, being desirable that a boat should be dispatched to the inlet as quickly as possible. On the following day a fire was observed on Cape Jervis, and though I could not calculate on meeting Captain Barker at that spot, I proceeded on shore to ascertain if the natives could afford me any information respecting him. A female of this tribe (named Sally) spoke English tolerably well, and was recognised as having been at King George's Sound in a sealing vessel, about three years ago. She could give me no information relative to Captain Barker, and after a little difficulty I prevailed on her to come on board the vessel and accompany me next day in search of him. I learned from this woman that there was a party of sealers in Nepean Bay, Kangaroo Island (about twelve miles from us), and I resolved to obtain assistance from them also. Next morning a whaleboat came to the vessel with two men in her, whose services I without delay secured. These men represented the impracticability at this season of the year of a boat getting to the inlet, and, even if the weather admitted of her entrance, it may be a month before she would get out of the bay should the westerly winds set in, of which there was every likelihood. As these men had been seven years in this part of the world, and seemed very intelligent, I was induced to adopt the plan they proposed, namely, to land at Cape Jervis.

and proceed to the inlet, and there to construct a raft of reeds, the usual mode of crossing the lake adopted by the natives, and which one of the sealers (Bates) informed me he crossed over on a short time since. The party left the vessel on the fourth of May, consisting of Captain Barker's servant, two seamen of the *Isabella*, the two sealers, Sally, and a native from Encounter Bay who accompanied Sally to the vessel from the shore, and as Mr. Kent expressed a strong desire to go I resigned my place to him, as the boat could not with safety carry more than eight people with their luggage. On the 7th inst. they reached the lake, accompanied by the father and uncle of Sally, and I learned from Mr. Kent that the former (Condoy) was chiefly instrumental in gaining information concerning Captain Barker's fate. The wearing apparel and biscuit, &c. (which had been deposited by the former party at the sleeping place), as before alluded to, were found untouched. The following particulars were obtained from three sources, all of which agreed: That Captain Barker's footsteps were tracked by two natives along the sand ridge near the beach on the east side of the inlet; that these two men were afterwards joined by a third, and when it was ascertained that Captain Barker had no musket nor any means of defence, the signal of attack was made by 'cooing;' that Captain Barker never perceived their approach until he received his first wound from Cummarringeree, whose spear entered at the left hip and came out at the opposite side; that Captain Barker then ran into the surf up to his knees, making signs with his hand, and calling to them to desist; the second spear was then thrown at him by Pennegoora, which entered at the right flank; and quickly afterwards Wannangetta threw the third spear, which entered his back and came out in front. Captain Barker then fell down, and the three natives brought him on shore and drew their spears backwards and forwards through his body till he was dead. They then took him up and cast him into the sea in deep water. I beg to refer His Excellency to Mr. Kent for further particulars concerning the murder of Captain Barker, and as Mr. Kent was his companion during his survey in St. Vincent's Gulph, he will be enabled, I have no doubt, to afford much information. The party returned to the vessel on the 11th inst., and I have much satisfaction in stating that G. Bates, from the knowledge he possessed of the language and manners of the natives, proved of essential service in obtaining the above information. To Mr. Hanson I feel much obliged for his advice and willingness to render every assistance in his power, and to Mr. Kent also I feel indebted for the

promptitude and zeal he showed on the occasion. I have the honor to be, Sir, your obedient humble servant,

“(Signed) ROBT. M. DAVIS, M.D.,
“Assistant Surgeon, 39th Regiment.”

To the Honorable Alex. McLeay, Esq., Colonial Secretary,
&c., &c.

The following letter by Mr. Davis, which accompanied the previous one, would also prove interesting: “I have the honor to enclose for His Excellency’s information a receipt for the sum of twelve pounds one shilling and sixpence, which was paid by me to two sealers at Kangaroo Island for the hire of a whaleboat and their own services in searching for the late Captain Barker, 39th Regiment, who was lost on the 30th ultimo, at the east side of the inlet in Encounter Bay. I laid this receipt before the board of officers now employed in the examination of the estate of the late Captain Barker, and I have been directed by the President of the Board to submit it through you for His Excellency’s examination.”

Continuing, Mr. Newland said that it was from the summit of Mount Lofty that Captain Barker and his companions beheld the mount that would bear his name to all time and the lovely country where the charming town that also bears his honored name grows and thrives, and where that day had been unveiled the monument in honor of the dead hero. and which, in its inception and erection, honored them. Sturt’s party undoubtedly first beheld their mount from the Murray, but Barker and his two companions were the first white men to look upon the beautiful woodland scene amidst which the town of Mount Barker nestled. Had he lived, no doubt Barker’s pen would have portrayed in eloquent terms the picturesque country that his eyes beheld and his footsteps pressed. The mount was Barker’s Mount, named after him by his old companion and friend Sturt, in touching memory of his noble life and tragic death. Sturt had written in the highest terms of Captain Barker, in perpetuation of whose memory they had Barker’s Bay in Coburg Peninsula, Barker’s Isles on the Northern Territory coast, Mount Barker and its memorial in this State, and a memorial tablet in St. James’s Church in Sydney. In conclusion, Mr. Newland said he hoped that in Mount Barker there did not and would not exist that spirit of vandalism which in so many instances had prompted persons to deface tablets and monuments erected to great men by writing their own names thereon. This was a practice which the Geographical Society particularly wished to see stopped. (Applause.)

The life story of Captain Barker may be briefly told. In

his address at Mount Barker in September, 1901, Mr. G. Sutherland, M.A., said that Captain Barker joined the 39th Regiment (Dorsetshires) in the Army in 1806 and served on the Continent under Lord Beresford and afterwards under Lord Wellington. Later he was stationed at Raffles Bay (on the north-west coast of West Australia) in charge of a band of soldiers and a number of convicts, the custom of the British Government at that period being to occupy any point of vantage which might, if left unoccupied, be taken up by the French. From Raffles Bay Captain Barker was transferred to King George's Sound. Just about this time Sturt had followed the Murray River down on an exploration trip, and after his maps "had been issued it was found that the mountain which he marked to the east of the River Murray did not exactly correspond with the position in which Flinders had stated Mount Lofty to be, but was several miles further to the east. Flinders was noted for his careful observation, and the Governor of New South Wales was not satisfied with the decision arrived at by Sturt, who did not take full observation but merely thought the elevation to be Mount Lofty. The Governor, therefore, ordered Captain Barker to proceed from King George's Sound to Sydney, and on the way to make a thorough examination of the country in question. In April, 1831, therefore, Captain Barker and those under his charge sailed in the *Isabella*, and the captain and a small party landed in either what is now known as the Port River or else at Port Willunga. They followed up the range of mountains until they found a deep gorge (apparently Waterfall Gully). On going to the top of the range and looking in a south-easterly direction they saw another mountain. Captain Barker proceeded to this elevation, where he found that the view obtainable was immensely superior to that to be had from Mount Lofty, as beyond was much flat country and the Murray River. This corrected the error made by Sturt. The subsequent experience of Captain Barker," continued Mr. Sutherland, "was most tragic. The party of seven (two soldiers, two prisoners, Mr. Kent, Dr. Davis, and the captain) proceeded to the Murray Mouth, where the leader asked if any of them could swim across to the sandhill on the other side (later known as Barker's Knoll). None of them being able to do so, the captain stripped, securely fastened his instruments on his head, and set out by himself to take some observations. The party saw him ascend the hill and disappear over the eminence—and that was the last they saw of him. They heard a noise of natives singing war songs, and, as he did not return, feared that their leader had been slain. On the following morning they prepared to

try to solve the mystery, and subsequently meeting a black woman from Kangaroo Island, learned to their great sorrow that the natives had killed Captain Barker and had thrown his body into the water where there was a strong current, so that it was carried out to sea and was never again heard of. Thus it was that on their arrival in Sydney Captain Sturt changed the name of the mountain which he had seen to Mount Barker."

Captain Sturt, referring to his companion in arms (both he and Captain Barker served with the same regiment) in the book, "South Australia and its Mines, with an historic sketch of the colony, under its several administrations, to the period of Captain Grey's departure, by Francis Dutton. (London: T. and W. Boone, New Bond-street, 1846)," says: "Captain Barker was in disposition, as he was in the close of his life, in many respects similar to Captain Cook. Mild, affable, and attentive, he had the esteem and regard of every companion and the respect of every one under him. Zealous in the discharge of his public duties, honorable and just in private life; a lover and a follower of science, indefatigable and dauntless in his pursuits; a steady friend, and entertaining companion; charitable, kind-hearted, disinterested, and sincere. In him the King lost one of his most valuable officers, and his regiment one of its most efficient members." That Captain Barker was highly esteemed by his brother officers is shown by the mural tablet which they had erected in St. James's Church, Sydney, and of which a photograph (kindly furnished by Mr. T. Gill, of Adelaide) appears with this article. This memorial is said to be one of the most handsome as well as the oldest of the many which are to be seen in St. James's Church, one of the most ancient ecclesiastical edifices in Sydney. The tablet on which the record of Captain Barker's untimely death is inscribed is enclosed between brown stone columns resting on an artistic base and surmounted by a carved entablature. Clustered round it are marbles to tell posterity of the early death of some young and promising officers who died in New Zealand and elsewhere when fighting for their country.

DESCRIPTION OF THE MONUMENT.

The monument, of which a photograph (taken by Mr. D. A. Milne, of Mount Barker), appears herewith, stands 13 ft. high. The foundation, which is hidden from view, is of concrete, and extra strength is given by transverse pieces of iron. The first base is of clinker bricks, with cement dressing, and measures 4 ft. x 4 ft. x 2 ft. high, and the second base (Murray

Bridge granite) is 3 ft. square. On top of these there is a base of Carrara marble, which is surmounted by an obelisk of the same material, and the inscription is in lead. At present there is no fence or other guarding around the monument, but some means of protection will be shut up in the immediate future. The erection of the monument has been excellently performed by Mr. C. Bom, of Hahndorf.

The two illustrations herein are from blocks kindly lent to this Society by Mr. C. M. R. Dumas, of the *Mount Barker Courier*.

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Destruction of Stuart's Tree.

The Government Resident (Mr. C. J. Dashwood) on Wednesday, October 1, 1902, conducted an expedition to Chamber's Bay, Van Dieman's Gulf, in the mail steamer Waihoi, for the purpose of proving the truth or otherwise of the reported disappearance of a landmark of the greatest interest, not only to Territorians, but to all Australians who have studied and estimate at their true value the heroic efforts of the early explorers to open up the secrets of the then comparatively unknown Australian continent for the benefit of their fellow-men. As a rule, these men were free from the taint of having any selfish pecuniary end in view, and appear rather to have been moved by that restless spirit of enterprise and love of adventure for its own sake, the prevalence of which among her children has aided so largely in raising the British Empire to its present proud pre-eminence. Among the most notable and daring exploratory feats on record, perhaps, was Stuart's successful journey from Adelaide through an unknown region in the very centre of Australia to the shores of the Indian Ocean in the extreme north. To have performed such a feat implies a resolute determination to "do or die" which was faithfully adhered to throughout, and which resulted in the leader and his party overcoming the almost insurmountable obstacles to the accomplishment of their self-imposed task, and in their safe return to Adelaide to enjoy the sweets of a well-earned success. Stuart's party left Adelaide on October 25, 1861, and were joined by Stuart at Leigh's Creek in December. Stuart and Auld returned in December, 1862, and the party on July 21, 1863. The following abridged extract from Stuart's Diary describes the consummation of the object of his journey, and may be of interest in connection with the recent expedition:

"Thursday, July 24th, 1862. Started twenty minutes to 8 o'clock, course north. I have taken this course in order to make the sea coast as soon as possible, which I suppose to be distant about $8\frac{1}{2}$ miles. . . . I did not inform any of the party, except Thring and Auld, that I was so near the sea, as I wished to give them a surprise on reaching it. Proceeded through a light soil, slightly elevated, with a little ironstone on the surface, the volcanic rock cropping out occasionally, also some flats of black alluvial soil. At $8\frac{1}{2}$ miles

came up in a broad valley of black alluvial soil, covered with long grass. From this I can hear the wash of the sea on the other side of the valley, which (rather more than a quarter of a mile wide) is growing a line of thick heavy bushes, very dense, showing that to be the boundary of the beach. Crossed the valley and entered the scrub, which is a complete network of vines. Stopped the horses to clear the way whilst I advanced a few yards on to the beach, and was gratified and delighted to behold the waters of the Indian Ocean in Van Dieman's Gulf before the party with the horses knew anything of its proximity. Thring, who rode in front of me, called out, "The sea!" which so took them all by surprise that he had to repeat the call before they fully understood what was meant. Hearing which they immediately gave three long and hearty cheers. . . . I dipped my feet and washed my face and hands in the sea, as I promised the late Governor, Sir Richard MacDonnell, I would do if I reached it. . . . After all the party had been some time on the beach, at which they were much pleased and gratified, I returned to the valley, where I had my initials cut on a large tree (J. M. D. S.) . . . Thus have I, through the instrumentality of Divine Providence, been led to accomplish the great object of the expedition, and to take the whole party through as witnesses to the fact, and through one of the finest countries man would wish to pass."

The diary goes on to relate that the following day, July 25, the party proceeded on a W.N.W. course over firm ground of black alluvial soil, and at two miles came upon an open part of the beach. Stuart's idea was to make his way along the coast, but finding the ground very soft in places, and being himself in bad health, and the horses weak, he determined to abandon this purpose. He therefore selected one of the tallest trees on the beach, stripped it of its lower branches, and on the highest branch fixed the Union Jack, with his name sewn in the centre of it, to the accompaniment of three cheers from his party. One foot due south from the foot of this tree he buried an air-tight tin case, containing a brief record of his journey to date, and bearing the signatures of the whole of his party. This buried record has never been found by any of the parties who have since visited the locality. The marked tree above referred to, bearing the initials "J. M. D. S.," was, however, discovered in December, 1883, by Messrs. H. W. H. Stevens, Hingston (Government Surveyor), and Buckland, of the B.A.T. The then Acting Government Resident (Mr. G. R. McMinn), who had for some years occupied the position of Senior Surveyor of the Northern Territory,

and had himself made ineffectual attempts to locate the tree, learning from enquiries among the natives that there was a marked tree in the locality, took steps for the dispatch of the above party to settle the question. In reporting the discovery to the Hon. the Minister, Mr. McMinn writes:

"The party returned on the 9th inst. (December), I am glad to say, with the news that they had, with the assistance of the natives who accompanied them, discovered the tree. This, it must be borne in mind, is not the same tree under which Stuart buried a canister on the beach, but is situated about one hundred yards inland from the sea.

Since its discovery, the tree has been visited on two or three occasions by different parties, and in June, 1893, when visited by the present Government Resident and others, was strong and vigorous, and apparently good for a long lease of life; but it was found on that occasion that some Goth or other had cut a great piece from the trunk of the sacred tree itself, just beneath the historical inscription, which probably started the decay which has led to the destruction of an interesting relic which might otherwise have endured for generations. For some time past, with a view to its preservation, Mr. Dashwood had made arrangements with some natives to keep the ground in the neighborhood of the tree clear of dead undergrowth, &c. Owing to a recent report, however, that the tree was dead, the present expedition was decided upon, the intention being, if the report proved true, to cut out and bring back that portion of its trunk bearing the great explorer's initials.

The subjoined particulars are taken from the report of the expedition:—The party proceeded on board the *Waihoi* about 11 p.m. on Wednesday night, the vessel sailed about 3 a.m. on Thursday, September 25, 1902. At 8 a.m. we were passing through the steamer passage between the Vernons, through which several pearling luggers were also beating against a cool, fresh south-easter, which covered the sea with gleaming foam caps. These boats made a pretty marine picture as they lay over before the weight of the wind, showing most of their yellow sheathing, and sending up little fountains of spray as they plunged through the short, choppy sea. Passing through the Vernons we were soon abreast of Cape Hotham. About noon Point Stuart could be dimly discerned ahead with low-lying land stretching away in a curve to the south and west and vanishing into Chamber's Bay. The steamer was taken in as close as Captain Mugg dared to go, the shoal water extending for a great distance from the shore, and a large lifeboat which we carried having been

lowered, we left about 2.30 p.m. to make a landing. . . . After a long pull we once more found our way on board the Waihoi, which had in the meanwhile steamed out into deeper water for the night. The following morning, after breakfast, the party again embarked, and by keeping closer to the before-mentioned reef, a fairly good landing-place was found, despite the fact of its being low water. There was still half a mile of flat to be traversed, seemingly composed of rotten coral covered by a not too fine mixture of mud, sand, and broken shells, but even the heavy weights of the party succeeded in making the beach without mishap. Extending from the beach some hundred yards on to this mud flat are numerous trunks of fallen trees, some half embedded in the slimy ooze. It was at some point upon this beach that Stuart had cleared of all its lower branches one of the tallest trees, upon which he hoisted the Union Jack, and at the foot of which he buried an air-tight tin containing a record of his feat, with the signatures of all his party. Neither this tree nor the record have ever been discovered. The scattered and half-buried tree trunks referred to would seem to show that the sea is gradually encroaching upon the land at this point, and in the forty years which have elapsed since the travel-worn Stuart and his party stood upon this beach and cheered the Union Jack symbolical of their triumph, it may well have happened that the tree which formed their flagstaff has become one of the company of derelicts, in which case the tin and its contents must long have been destroyed by the action of the salt water. News of our arrival had spread, and we found about twenty natives—men, women, and children—waiting upon the beach, and a start was at once made on our two and a half to three mile walk to the farther side of the point. The party presented a unique spectacle as it strung out in Indian file along a good pad, which led in places over sun-cracked expanses of bare mud, patches of the singular 'Bay of Biscay' country, and across plains covered with brown tussocky grass, with here and there burnt patches, where the bush fires had been at work. Charles Creek, which Stuart mentions in his diary as so difficult to cross, proved to be little more than a deep drain cut through the plain, with a dribble of water in the bottom; but it may be formidable enough in the wet season. Crossing it we entered upon a wide plain, with here and there scattered clumps of Pandanus, and jutting promontories of green jungle upon its farther side. Towards one of these a course was steered. Nothing definite could be obtained from the blacks as to the fate of the tree, but there was a manifest uneasiness observable among them, and a reluctance to discuss the matter. "Mr. Justice Dashwood

and Mr. S. T. Brown, who visited the place previously, were the first to arrive at the site formerly occupied by the historical landmark, and their disappointed exclamations were a sufficient revelation to the others as to what had happened, and showed that we had arrived too late. The tree had been situated just inside the south-west edge of the jungle, but all that was left of it was an outline in white ashes, apparently not many weeks old, and quite undisturbed. Judging from the ashes and a few of the decayed upper branches remaining unconsumed, the tree must have been dead for some time, and must have fallen with its head towards the plain prior to being burnt. Besides the burnt tree trunk there were no traces of fire within the jungle, but on the plain were evidences of recent fires in close contact to the position which had been communicated to the trunk by this medium; and the complete annihilation of every vestige of the tree except a few fragments of the upper branches show that it must have been dead, and probably very much decayed. The main purpose of the trip having failed, the next best thing possible was done by cutting down a young tree, and planting about 10 ft. of its trunk in the hole left by the burnt out tap root of Stuart's tree. This operation was performed with some ceremony by Mr. Dashwood, who indulged in a few appropriate remarks—half humorous and half-pathetic. A roughly pencilled record to the following effect was enclosed in an empty 303 cartridge case, along with a silver coin, and buried beneath the stake, viz.:

"Visited tree. Found burnt to ground. Deposited this in tin. Also a bent 6d. (1883), Queen Victoria's reign. September 26th, 1902. C. J. Dashwood (Government Resident), J. J. Lawrie, C. J. Kirkland, S. T. Brown, F. A. Price, D. K. Holden, H. Pinder."

The following bearings were also taken to fix the position of the stake in view of the erection at some future date of a more permanent record: From banyan tree, S.E., 22 ft.; from blazed tree, S.W., 34 ft. 6 in.

This ceremony concluded, the party started back for the beach at 11.30 a.m. some of the few remaining fragments of the upper branches of the tree being brought away as a memento. "Reached the beach at 1 p.m., and found the wide expanse of flat we had tramped across in the morning covered by the flood tide. The boat was brought close in, and after the Government Resident had presented the blacks with some flour and tobacco, we started on a long pull out to the steamer against a fresh N.W. breeze and lumpy sea. Arrived on board, a course was immediately set for Cape Hotham, and

shortly after dark, anchor was dropped off Escape Cliffs, the site of the original settlement, under the Hon. H. B. T. Finnis, founded on 20th June, 1864, and abandoned two years later. The following day we ran thirty miles up the Adelaide River, and to those who had not previously visited this stream the sight was a revelation—the noble reaches of deep water and the magnificent plains stretching on either hand as far as one's vision extended—being a panorama worth travelling some distance to see. If ever these plains be brought under cultivation—and should this happen operations will have to be on a large scale, and backed by ample capital—they should prove the rice granary of Australia, and for sixty miles or more the water provides one of the finest waterways in the world.”

RECOLLECTIONS
OF
OLD COLONISTS.

Reminiscences by Pastor Finlayson

I was born in 1813, in Glasgow. When I was fourteen years old I entered as a junior hand the manufacturing warehouse of Mr. Andrew Reid, of St. Andrew's-square, Glasgow, with 4/ of weekly wages. Some time after this he died, when I entered the warehouse of Robertson, Ferguson, & Somerville. In this my new place of business I was brought into entirely new associations. Our foreman, Mr. Cowan, was a quiet man, and we got on exceedingly well together. For four years and three months I do not remember a single difference between us. At this time, desiring to get near to the head-quarters of a missionary society, I applied for employment to the London City Mission, and the answer I received was, "Come," so I went to London, when I was appointed to a district, under the superintendence of the Rev. John McDonald at his request, his church engaging to pay my salary—£60 per annum—and although a young man himself he acted as a father to the raw young Scotchman.

Just at this time there appeared an advertisement in the London newspapers representing the advantages of emigration to the newly formed colony of South Australia, and offering a free passage to young married men. This seemed to exactly agree with my inclinations. Several times before this I had met a friend, staying with Miss H——. I saw her and asked if she was willing to go. Taking time to consider, she agreed, giving a hearty consent, and would try to be ready in time, if she was able to arrange her affairs. I arrived in Edinburgh on the morning of September 30, 1836, and on that same evening we were united by Mr. and Mrs. Junes, Baptist minister—arrangements having been previously made—and on the next day, October 1, we left for London, and on the eighth day of the same month we were on board. Never have I had cause to regret my union to my late beloved wife. She was in every sense of the word a "helpmeet" for her husband.

Here we were, then, on the 8th day of October, 1836, on board an emigrant vessel bound for the new colony of South Australia, shut in with rather a motley assembly for four months, but in perhaps one of the best-regulated ships that has ever carried emigrants. The captain left us to manage our own internal matters. A regular watch in case of fire or other accidents was set; all lights, unless in cases of sickness,

had to be out at a certain hour; and two constables, with an appointed judge and jury, took charge of and punished transgressors. The punishments were "stoppage from wine rations" or "a committal to the coal hole." On one occasion Tom, one of our constables, a fine stout fellow, could be seen conducting the husband, for some breach of rules, to the judgment seat, then shutting him up in the coal cellar, and afterwards carrying his fainting wife on deck for free air.

The women had to scrub the floors of their compartments, &c., in which work my dear wife never failed to take her share. The tedium of the voyage was relieved in various ways. On Christmas Eve a grand ball took place in the messroom, when a good deal of flirting and lovemaking went on among the young men and women, and which resulted in more than one marriage after we got on shore. Our black steward became lovesick, and some of the young fellows for fun persuaded him to fight a duel with his rival. It took place early in the morning, the pistols being charged only with powder, and in the dread excitement which followed two shots, one of the young fellows being provided with blood of a sheep recently killed, managed quietly to pour some over the poor fellow's arm, and persuade him that he had been wounded, and it provoked many a laugh to see him walking about with his arm slung in a handkerchief. I tried to persuade him that it was a joke, but he shook his head and would not believe but that he had been wounded. However, the stewardship was taken from him and given to a boy who had been his assistant. In these and such like ways was the long voyage endeavored to be lightened.

But the longest earthly adventure comes to an end, for in the beginning of February, 1837, we arrived at Kangaroo Island. Here we saw some native women, who had been living with white men for many years on the island. Here also the S.A. Company had formed a settlement, and here we became aware that our destination was a place in St. Vincent Gulf called Holdfast Bay, afterwards named Glenelg.

After our long voyage, intense interest was felt while sailing up the Gulf to see what this land, our future home, was like, and we were not much prepossessed at our first glance at the long range of barren and desolate sandhills as we neared Holdfast Bay, and which shut out entirely our view of the country immediately beyond. But at the distance inland of twelve or fifteen miles a grand range of hills rose before us, white and glistening with the long dry grass of summer, and well wooded. Before next day's sunrise a great change took place in the landscape before us. The watchers on deck beheld a fire on

one of the hills, which seemed to spread from hill to hill with amazing speed. All on board were now awake and on deck looking at this grand, and yet to us, who knew not its cause, fearful conflagration, as it seemed as if the whole land was a mass of flame. In the morning a great change had taken place; the whole range was as black as midnight, except where trees were burning, and shortly after we landed the mystery was explained. At the end of summer as this was, the natives had set fire to the long dry grass to enable them more easily to obtain the animals and vermin on which a great part of their living depends. Some of us now went ashore to view the land, where we found several reed or rush huts that had been erected by some who came a few weeks before us. Our captain had now orders to sail round to the creek on which Port Adelaide was to be established, but several of us started early in the morning walking seven miles to Adelaide. Nothing was to be seen there but stunted peppermint trees, with surveyors marking out what have since become streets and squares and terraces; but not even a tent was to be seen, the town acres not being then chosen or sold. We returned to the Port footsore and hungry, and enquired at the only store for something to eat. We found the storekeeper had not much to sell; but, said he, "Look there, do you see those flour barrels near the water. If you set to work and roll them up here I will give you something you can make a dinner of." We were hungry and tired, and gladly essayed to roll the casks up, when he graciously paid us with a piece of raw pork, some sour American flour, some water, and a fryingpan. One cut up the pork, another lighted the fire, and a third mixed the dough. Our pork was soon fried, when the thin dough was poured into the pan among the fat, and we were soon eating pork and pancakes—good thick pancakes, rather inclined to stick to our teeth—but our hunger was satisfied, and we felt thankful for our first meal in South Australia, and which we had earned by our labor.

When the passengers left the ship and were put on shore some remained at the Port, but most of us went up to what was to be the City of Adelaide in the future. Our situation was a strange one. We had come to the colony of South Australia, the wild dogs had holes, and the opossums had nests in the hollow gum-trees, but we had nowhere to lay our heads or to ward off the burning sun. Our first business was, then, to make a sort of booth. I was quite unused to tools, but I borrowed an axe, and with considerable exertion cut down some saplings on the banks of the river, and then carried

them to the place I had fixed on for my erection. We could follow our own fancy as to where and how we put up our future dwellings, as no one interfered with us or gave advice. When I had got my posts cut and carried, I measured a space about 8 ft. square, and planted a post at each corner, and on my wife's joining me we had a hearty laugh at my building operations; but we were full of hopes for the future, and never did I hear a murmur or regret come from her lips, although she was under the doctor's care when put on shore. Here we were in South Australia, the land all before us, with not a foot we could call our own, but we were very far from feeling lonely or discontented. On Monday morning we looked round and found that most of our shipmates were much in the same condition as ourselves as regards house accommodation, and had to shift as they best could. Our bowers and tents were erected close together, without any attempts at order or regularity, and close to the stream which was named the River Torrens. A very beautiful stream it then was. The deep banks were covered with underwood and trees of various kinds, while the bed of the stream was covered with a thick, close, and beautiful growth of tea-tree, with a great variety of aromatic flowers and shrubs, which delighted us, who had been so long on the sea. Higher up from the river was a row of reed cottages called "Buffalo Row," put up by those who had come in the two ships before us, and many among us looked, I am afraid, with envy on these pretentious dwellings; but we learned afterwards that from the great numbers of women and children in most of them Buffalo Row was by no means a Paradise. Our location was much more romantic-looking than the Row, and it was really amusing to look at the various styles of architecture exhibited all round. In every case our materials were of the simplest cloth of all kinds interspersed with tea-tree and reeds, rushes, and dry grass, and never was Gipsy Camp in the old country more picturesque than was our encampment on the banks of this river. As the heat was very great I began now to cut down some of the tea-tree, whose branches and small leaves were thick and close to surround and cover our tent, which then assumed the look of a sylvan bower.

Our doorway was my wife's black cloak hooked over the lintel, drawn aside for light in the day and spread out for protection in the night. Not relishing sleeping on the floor, as there was nothing to prevent wild dogs, snakes, or other vermin getting in, I made a kind of bedstead with the simple materials we had, and on this we laid our mattress. As it was not very thick, it was not unlike being stretched on a

gridiron. We had plenty of ventilation in this our living and sleeping apartment; rather too much at times when the wind was high. Our neighbors were very honest, for although many things lay about we never missed any. My wife was often entrusted by them with money, and at one time she could not have had less than £150 in gold, yet never either by day or by night were we ever disturbed.

There was great amusement in our little village one day. A wild dog got into one of the booths, when he was quickly killed, skinned, cooked, and eaten. On another day on the banks of the river a large snake was killed. We could then get no fresh meat for love or money, so the snake's head was cut off, and its long body coiled up in a boullie tin, baked, and eaten. One fellow boasted of eating a foot of it, and many little incidents causing considerable fun occurred from time to time. One Lord's Day we were startled by the sound of a long peculiar wind among the trees. It was a new sound to us then, but well-known afterwards as a prelude to rain. We returned at once to our lodge, when a few large drops gave us warning of the coming storm. We then retired to rest, and soon the rain began to fall in torrents, when our beautiful and fragrant tea-tree roof, being flat, was soon found in a very practical way to be no protection, as the water soon began to drop, drop, drop upon the end of the bed where the roof covering was thinnest, until our faces and heads were bathed in water. We pulled the bed clothes over our faces, but these soon soaked; then rolling our mattress up, we sat as close as we could, wrapping the bedclothes about us, and put up our umbrella. While the rain was thus pouring in, down went our bedstead on the flooded floor. We had wet nights after this, but were better used to them, and somewhat better secured by having bundles of reeds lying on the roof.

I now set about seeking for work, being resolved to take anything I could get to do. My first job was in conjunction with our late Constable Tom, picking up limestone with a crowbar. This work lasted a few days, for which I was paid 4/ a day; when a countryman, who was about to commence auctioneering, offered me 30/ per week to act as clerk, and do anything else that was needed, until I got a better berth.

The town lands had now been allotted and sold, and one of our shipmates who had bought an acre asked me to join him in putting up a mud cottage on his land, which we would jointly occupy until I got one of my own, when he would give as much time to help me as I gave him. The acre, like others of the town land, was covered with gum and

peppermint trees. Choosing the most open part, we marked out our house, which was about 20 ft. long by 10 ft. broad, which, when finished, was to be equally divided. Our material was earth dug from the soil mixed with water into mud. This was put on the walls and allowed to dry; then more was added, until the walls, about $4\frac{1}{2}$ or 5 ft. high, were completed. The water we drew from the river in a nine or ten gallon cask rigged up at the ends, so that we could draw it without a rope, and when the walls were up we got bill-hooks and cut reeds for thatching, and also got an experienced man to put on the reeds. We then divided the house into two equal parts by a reed partition, when each took possession of his share, and now we had the satisfaction of being within solid walls and under a roof which would cast the rain. A somewhat funny incident on the night we took possession. After sunset we left our bower (for some one else to occupy), and with a lantern went towards our new house, but there being no path or landmark, and no one to enquire the way or tell us where our hut was, we wandered among the trees for several hours, and found at last that we had gone many times around it in our search.

About this time a great event took place in the printing of the first newspaper, which caused great excitement in our little community. While in this hut we got up the last of our luggage from the Port, at the end of three months. I managed to carry one box halfway, but was obliged to leave it there. Others were in the same plight, as no conveyance could be got for a long time either for love or money. At last a friend who had also some boxes on the road, hired a truck for, I think, 5/, from 6 at night till 6 in the morning.

As we were starting we met Mr. Howard, the Colonial Chaplain, returning with a truckload from the same quarter, his man in the shafts and himself leading, pulling away with a belt across his breast. With great good humor he wished us a successful journey. These days ought to have pleased the communist; every one had to work. We picked up our boxes and returned completely worn out, and it being very dark we had a narrow escape from tumbling over the steep bank of the river.

A considerable time elapsed before fresh meat could be had at any price, and some parts of kangaroo sold at 1/ a pound. Salt beef and pork could be got, but being so long confined to this diet on board ship we did not relish it much. It was some time before a baker began business. I walked once to Glenelg seven miles for a loaf or two, but for some reason returned unsuccessful. We were quite delighted when

a little treacle could be bought. The natives were then in considerable numbers, and there were frequent alarms. On one night the whole colony was awake and under arms, but we found there was not the least cause for alarm. Our great fear arose from what we supposed were the tribes beyond the hills, but we soon found out that there were fewer there than among the settlers. Once they held a great corroboree, as it was called, and it did seem like a dance of devils. The poor creatures often came into and even slept in our hut, but never did they in any way molest us.

They destroyed some at least of their own female infants, for one Sabbath morning I came upon a large camp near to West-terrace, where I found a number well known to me, some of them wild, ferocious-looking fellows—Rodney, Captain Jack, and others. They were talking together very earnestly, and there was an unusual bustle and excitement among them. I was soon made aware that a new female infant was in one of the wurlies. I made signs requesting to know what they were going to do with it, as the mother seemed not to have touched it. Rodney took up a waddy, and by a very significant motion signified that they were about to kill it by a blow on the head. Making signs for them to wait, I went for and returned with all speed, bringing my wife with me, who tried to get the mother to take it up, but could not persuade her to touch it. I then went for the Protector, as he was called, and he, with the interpreter and black woman who lived with him, returned with me to the camp. For a long time all our arguments were unavailing. The mother was still suckling a boy two or three years old, and said he would starve if she took this one. We continued with them nearly the whole day, and after long palaver a treaty was agreed upon, by which the child's life was spared. The mother continued to visit us, but about two years after the child died. Long ago every one of the Adelaide and other neighboring tribes died out. Certainly they were by no means badly used; on the contrary, they were kindly treated. No natives are now seen in Adelaide except those that come from a considerable distance.

Public worship was held from the first, both by Methodists and Church of England. The first had meetings in one of the cottages in Buffalo Row. A wooden house was sent out with the Colonial Chaplain in the first emigrant vessel. Part of the wood was brought up, and Mr. Howard, with his own hands, enclosed with this a place where he could preach, with the open sky for a roof. He was an excellent man, always cheerful, and, like the great apostle, he worked wil-

lingly with his hands, preaching the Gospel on the Lord's Day; his wife also visited among the settlers. He and his wife were examples and blessings in those early days.

A deputation of quakers—Messrs. Backhouse and Walker, who had been very useful among the convicts in Van Dieman's Land—visited, preached, and held meetings, silent and otherwise. At a meeting, over which the Governor presided, a temperance society was formed, when I was appointed one of the committee, for at this time there was a good deal of drinking, as spirits were cheap and provisions scarce and dear, but gradually the neighboring colonies of New South Wales and Tasmania sent us supplies, and we were able after a time to buy mutton at 1/ a pound. We did not see much beef until herds of cattle were brought over from New South Wales.

Although a small community, there was a great deal of political strife among the chief men, the Governor, and Commissioner's parties, and this did not cease until the advent of the second Governor, who united both offices in his own person, but the great body of the people took little interest in these contentions.

About September, having got as part of my wages a piece of land in Rundle-street, I built, with the assistance of my friend, a two-roomed cottage, the bedroom boarded, a chimney in the living room, and a cedar door with a lock. Here was a great advance on the one-roomed hut, but we were quite as happy in the old as in this more pretentious abode. I have learned all through my colonial life that true contentment is not in the smallest degree dependent on outward circumstances.

Many houses had now been erected in the town. Some of the streets, notably Hindley and Rundle streets, were defined, and many dwellings and even shops built, and all over the place clearings were made and cottages of various materials erected, viz., of wood, slab, lath, and plaster (in colonial phrase, wattle and dab), viz., mud or wetted earth beaten into a frame. At last houses were made of brick and stone, as some excellent clay had been found and used.

Some persons, who had bought land on speculation, now divided their acres into small blocks, or allotments as they were called, and numbers of poor colonists were thus able to obtain a freehold.

But I may say that the romance of our colony ended in the month of October, 1837. From the beginning of the year till then a few ship hands came, bringing accessions to our numbers, but these were nothing to the crowd who then

arrived on or about the same day in three emigrant vessels. Many came on shore grumbling that they had no better accommodation provided for them, so farewell now to the contented equality of the former times, as some of them expected the place to be far more forward than they found it, and so were disappointed.

Nevertheless, with these vessels came out some good men and women, with whom friendships lifelong were formed. One of these was Mr. Stow, Congregational minister, and his wife, sent out by the Colonial Society, whom we were heartily glad to welcome. He brought with him a very large tent, which was used by his family to live in, and for his congregation to worship in on the Lord's Day. He was not a complainer, but took to his work as his brother in Christ, Mr. Howard, had done, and soon began to collect materials for building. I have seen him on an evening very weary looking, with not a very clean white necktie, and on asking what had been the business of the day he showed me a large truckful of young pines which he and his two men had cut and drawn from the pine ground three or four miles distant, besides a large number which he had brought home before. Thus was he preparing for his house and chapel building, for both were combined in one. He lost no time in gathering a congregation, and formed a church of eleven members on the 19th of December, 1837. My wife and I were then the only two Baptists in South Australia.

Mr. Stow was very highly esteemed as a faithful preacher, and the manager of the South Australian Company had some of his sermons printed, and attended regularly until a Baptist church was formed. Another excellent Christian man, Mr. Wm. Giles, and his family, arrived in the same ship, but for a time he tarried at the Company's settlement at Kangaroo Island. This gentleman was one of the best friends I ever had.

Shortly after our cottage was built the South Australian Company started building a row of brick cottages for letting, and my wife one day, standing at our back door, saw a kangaroo come hopping along to our fence, where it made a spring to clear it, but one of the laborers, as it sprang, caught hold of its tail, and another knocked it on the head with a brick. It was a great prize, as meat was dear, and there was no more work for the two successful captors that day.

I had from various quarters collected a vocabulary of words spoken by the Adelaide and Rapid Bay tribes, but I did not make much progress in learning, and came to the somewhat painful conclusion that I had not the faculty for

acquiring their language. We often looked to the Mount Lofty range of hills, and wondered what was the condition of the natives beyond them, feeling assured that there was more hope for instructing those who were away from the bad influence of white men. No one as yet had been beyond the hills to give information as to what was to be seen there, and I resolved to go and see. We made up a party of four, my former employer, Mr. Cock, being leader. He was going in the way of business as a land agent to see the land, I to see the natives, and our two companions in the spirit of adventure. There was some misgiving among our friends, as many thought we would never return; but on Christmas Day (1837) we started taking provisions for eight or ten days, with a packhorse to carry our stores, blankets, &c.; our two companions took guns, but neither Mr. Cock nor I carried any. Our intention was, if possible, to reach the River Murray, where from Captain Sturt's account the natives were numerous, and his book we carried with us, together with a Bible. Being Christmas Day when we got to Crafers, we found some splitters of stringy bark rails at their Christmas dinner, which they kindly invited us to share; but declining this, we continued our journey, steering by compass, as there were no more stations of white men. We had not gone many miles when our horse got bogged in crossing what has ever since been named Cock's Creek, but our united strength could not pull him out, and we were obliged to return to Crafers for help, when Mr. Wilson and his stepsons willingly returned with us, and then by great exertions and main force we got him out and camped for the night. Next day we dined on top of Mount Barker, where we gathered a cairn of stones and set up a flagstaff, but not having anything to make a flag Mr. Cock went behind a boulder and tore away a wide strip from his shirt tail, which we left flapping in the wind, and then writing our name on a slip of paper we thrust it into a heap of stones. This paper I have been told was afterwards found by an overland party, who blamed us for not giving them the point where Adelaide was to be found. In the afternoon we camped at a watercourse now known as the River Bremer, and next day we entered the scrub, hoping before night to reach the great River Murray, but found it so thick and close in many places that we had to clear a way for our packhorse, our packs being continually torn off his back, which then had to be readjusted. Footsore and weary and parched with thirst we journeyed on and on, hoping to see some opening or end of the scrub, but in vain, for we did not know then that this kind of country extended for scores,

even hundreds, of miles. In the afternoon we came to the resolution of turning back, and we thanked God for putting this determination into our minds, for had we gone on in all likelihood our bones might have been found after many months, or even years, like many others, some well known to us, who perished from thirst in the waterless wilderness. We did not go back on our tracks, but made for the Lake, and just as the sun was sinking his last rays were reflected to our great joy in a long glittering pool of water. The memory of that glad moment is with me now. Rushing down we drank two small kettlefuls of water among four men in that long summer day, and ever afterwards we sympathised with travellers in the Murray scrub. We traced this water, which was the Bremer, next day to near the Lake, the shores of which were fringed with reeds, and as this part was quite fresh, the morning being very hot, we stripped, and were, I suppose, the first white men who bathed in its broad waters.

We now by a different route took our way homeward, and the next day came to a broad watercourse, which we named "Angas," after one of the best known of the Commissioners. On our return we saw some kangaroos on the Angas Plains, but not very near. After several adventures we arrived in Adelaide on the evening of New Year's Day, 1838, in a very tattered and forlorn condition. My dear wife, seeing her husband coming, ran to meet me with baby in her arms, but the little one could not recognise her father in the ragged object before her, and turned away screaming. Some in Adelaide thought we would never return, but be murdered by the natives, but, strange to say, although the motive and object of my journey was to see their state and numbers, we never saw one from the time we left Mount Lofty until we got near Adelaide. Smoke in the distance we frequently saw, and came upon their recently occupied camping-places, but themselves we saw not, but I have no doubt they saw and avoided us. We camped about half an hour before sunset, and lighted a fire and made a kind of wurlie, plucked the birds our sportsman shot, got our supper, and then wrote up my journal, which was afterwards published in "The Register" newspaper. Having still a desire to be of service to the natives, we resolved to leave town and go to a sheep station; and thinking also that a knowledge of country life and work would be useful we sold our little cottage and moved to Brown Hill Creek sheep station, about four and a half miles from Adelaide. I went as shepherd's mate, wages £1 a week and rations. There were eighteen hundred ewes and lambs on

the station, most of them bad with footrot and scab. An experienced man from Tasmania dressed them, and I assisted day by day for a considerable time, and got a good deal of insight into the way of dressing and curing these diseases, although it has not been of any use to me since.

Our tent was a wooden frame with tarpaulin sides and roof, and very far from being so comfortable as our two-roomed cottage, but we did not mind that. It was erected a little lower down than where the church (St. Michael's) is now built at Mitcham. Part of my duty was to assist in putting up hurdles, which, as the sheep were bad, had to be shifted every day; also to keep up fires at night to frighten the wild dogs from them; and my dear wife entered heartily into all my plans, and helped as far as she was able. Between our station and Adelaide was neither fence nor hut, so that the sheep could feed over the plains to the park lands and up on the hills all round. While on this station our eldest son was born.

The Brown Hill Creek, where it issues from the hills near our station, was a gathering place for the natives; as many as a hundred and fifty have been camping there at one time. My wife has been left alone at the station when these gatherings took place, and only once were they uncivil, when a fellow, who came begging, gave her a blow in the face because she refused to give him bread or rice. We and another Christian, who lived beyond the creek, went among the "wurlies" talking to the poor creatures as best we could without the least fear, and they seemed to appreciate our efforts to help them. Some were special favorites from their good qualities. One old man, Willama, was nearly blind from age, with a beard white as snow. His wife and daughter, Mary, begged and dug roots to supply his wants, and were exceedingly careful and attentive to him. Bob, Mary's husband, was ill in town, and poor Mary came to beg that we would send our piccaninny (pony) horse and cart to bring him out. Bob was very bad, and providing for him and the old man was no easy matter, but Mary was unwearied in her efforts, and even climbed up gum-trees after opossums. On one of these occasions she lost her balance and fell, breaking her thighbone, when her mother came to our tent in great distress. On going to the spot we found poor Mary lying in great pain with a few boughs over her. Before going for help we unhinged the door of the hut and laid her carefully on it, and would have taken her to our tent, but she wished rather to be taken to old Willama, her father. On seeing her state he uttered a cry of deep distress.

and seemed quite overcome and unable to do anything, but after his grief had subsided he set about dressing the limb. We had sent to town for the Protector, Dr. M——, but long before he came the old man had finished dressing, and would not let her be touched by the doctor, who, on examining, said that the dressing was well done. She recovered, but had a limp ever after. We never at any time witnessed such natural affection as that shown by this family. I might mention that the mother, before lifting her daughter on the door, put water in her mouth, and spurted it all over the sufferer, perhaps to keep her from fainting.

There was a sense of humor among some of them. One day, as my wife was washing, a native woman, enveloped in a dirty blanket, came up, and on my wife asking her when she did her washing, promptly replied, "White woman Adelaide do all my washing." They kept lots of dogs, which were a great annoyance, as they generally were very hungry.

But all these tribes are gone, and I am not aware of one individual being alive. Contact with the whites in every case seems to have this effect; and the only way of saving them is to keep them apart, as is now being done in several parts of the country.

After a few months the sheep station at Brown Hill Creek was broken up as being too near town, and the flock removed further inland. We did not, however, remove the flock, but resolved to rent an adjoining section of 67 acres. Being very beautifully situated on the slope of the hills, with the creek or brook running through, it was after a short time surveyed into acre blocks as a village and named Mitcham. Some of the acre allotments were sold at £20, and have within these last few years been subdivided and sold from £75 to £200, or even more, such has been the rise of land near Adelaide.

A tramway now connects this little village with Adelaide, and cars run every hour. There are also waterworks, and the water is laid on to every dwelling where it is desired. I mention this to show the present condition of our neighborhood, and how different to that in which we took possession of our section.

We had the sides and roof of our house of wooden palings instead of tarpaulin, and erected it near the centre of the land in a place somewhat free from trees. Our milkhouse was partly dug in the ground, partly built of wood, and with a paling roof, and on more than one occasion we have found a snake in it, and at other times the more dangerous death adder, attracted by the milk, of which they are said to be

fond. Here also I laid out a garden, and after fencing it in in the best manner we could, planted it with a variety of herbs, bushes, and reeds, some of which grew well, particularly water melons and onions.

Our house was 15 ft. long by 8 ft. wide. After a while a kitchen, 11 ft. x 7 ft., was added, and in this place, with some further additions, eight of our children were born. We could not at this time afford to pay for glass to our little windows, so it was my work every night to fasten up a cloth to keep out the night air.

The land we rented from the South Australian Company. It consisted of 67 acres of woodland, for which we got a lease for seven years, 10/ per acre, the yearly rent being £33/10/. with the right of purchase at £17/10/ per acre. The first year we managed partially to clear a crop in wheat, four acres, the seed for which we paid 15/ a bushel, my friend Mr. Randell helping us kindly in every way. The crop was very good, but after paying for reaping, stacking, and thrashing, we were rather out of pocket, as we only got 8/6 per bushel for our wheat. So passed the first season of our farming. The second year we had added a little to our clearing, and sublet part of the land, but at harvest only 3/6 per bushel could be got, as many now had taken to farming and wheatgrowing, land speculation in the town being no longer profitable, and everything except farm and dairy produce continued high in price. For example, the grinding of a bushel of wheat into flour was charged 2/6. But darker days than these were coming, as next year all that could be got for the best wheat was 2/3 to 2/6, and even then perhaps the greater part of the money had to be taken out in goods, so that we found it very difficult to pay the reapers. They were frequently Germans from the hill districts, whose own crops were four or six weeks later than ours on the plains. They demanded £1 per acre and a bottle of Cape wine, and had to be paid in cash, so we were often at our wits' end how to raise the money. The reaping and binding also was often very badly done, and caused both trouble and loss in carting and stacking. Such was our trouble before Mr. Ridley's admirable invention of a reaping machine, which both cuts off the wheat and thrashes it at the same time.

The process of clearing the timber had to be carried on before we could even plough the land, and this my wife and I tried to do ourselves, as we had no means of paying for help. Our ordinary way was to burn down the trees by keeping up fires at the roots, and often have we both been up till midnight.

Another cause of trial in these hard times was trouble with cattle. Means were so scanty that we could not fence our land properly, so that our cattle got into our neighbors' crops and theirs got into ours. Night after night have my wife and I driven cattle out of our standing corn even after it was cut, and sometimes we ventured to cut it before it was fully ripe to save some of it. We managed somehow to bear these trials with a light heart. I should feel them much more now than I did then. My wife, who was my good angel, was ever hopeful and trustful, bearing patiently with the temper and infirmities of her husband, and never did I hear a murmur or reproach come from her lips. Amid all our trials, I make bold to say that few could have surpassed us as regards the happiness of our married life, so that we often used to say that our honeymoon had never grown less. Surely the value of "a good wife is far above rubies." We were very often disappointed in our calculations regarding our crops. Once I had, with considerable labor and expense, put in some potatoes, which thrived well, and I was calculating on a good return, when a neighbor's pigs found them out, and although remonstrated with, morning after morning the old man was seen driving them out and hurrying home with them, so our hopes for that quarter were disappointed. The manager of the Company was very kind and forbearing as regards the rent, the payment of which was one of our greatest money troubles, and although they reduced the rent, yet still we found it very hard to meet, and numbers of tenant farmers had to throw up their farms. At the end of our seven years' lease we were utterly unable to prevent pre-emption, but by the kindness of the manager, Mr. William Giles, the lease was renewed on the same terms for seven additional years, and before these were ended a great change for the better had taken place.

The first break in those dark years was the discovery of the Burra Burra Copper Mines, about 100 miles from Adelaide. These not only employed many men as miners, but scores of farmers, after they had put in their crops, found profitable employment for their teams in carting the ore from the mine to Port Adelaide, and as the majority of the shareholders were poor men, all the proceeds remained in the colony. Wheat soon rose to 4/ per bushel when a trade with this produce began to be opened with England, and money began to circulate more freely. Other mines also began to be opened, such as The Kapunda, and great quantities of ore were sent out of the colony, which opened the door of hope, and the country financially revived.

In those early days we had frequent visits from snakes. One day near the cottage I was bending over some work, when one glided between my feet and entered a hole under the floor of the cottage. I kept a sharp eye on that opening, but never saw it again. I did not tell any one what I had seen until we left that old place. When we could manage to do it we hunted the snakes out. Some were very dangerous, but I do not remember one person in our neighborhood who was ever bitten by them.

As many had now come to live in Mitcham, we took counsel and agreed to get subscriptions for the erection of a house, which would be used as a schoolhouse on week days and for preaching on the Sabbath, to be open to all Christian denominations. The place was built and a teacher appointed, and he very soon had a good number of pupils. The getting a supply of preachers generally fell to my lot, in conjunction with the teacher. Ministers and teachers willing to help were Independents, Baptist, Methodist, and Presbyterian, once in the afternoon of the Lord's Day, and we generally had a good congregation, people coming from considerable distances around.

Mine were all very good boys, willing to help in every way, but were fonder of reading and study than farm work. John when grubbing stumps carried his Greek grammar with him, so that when he rested he could look into it. The proprietors of "The Register" newspaper having heard of his success at school, desired that he should join the literary staff of that paper, and after a trial were so satisfied with his ability that they offered very favorable terms for a three years' apprenticeship, which we accepted. Since then he has obtained a first position in the office.

When the gold diggings in New South Wales and Victoria were discovered many of our South Australian farmers left their families to dig for gold, and some succeeded and returned with considerable quantities of the precious metal. A laboring man who lived in Mitcham, and had been to Victoria, put into my hand a bag which weighed 14 lb. of gold, which he got by his own labor.

I never had the least desire to leave my home, and those who remained were frequently better in circumstances than those who went.

In the course of time, as the price of all farm produce continued good, we were enabled to put up a better house in a higher part of the land; this we named "Helenholme." About this time some brethren from the church in Adelaide,

of which Mr. P—— was pastor, came statedly to preach in the schoolhouse, when I was induced to join the Church of which they were members, and walked to Adelaide on the mornings of the Lord's Day.

After a time I agreed to take over a small chapel in Pulteney-street, which had been built for Mr. Fetherington, a Baptist, but at this time was closed, and opened the place for public worship in September, 1853, with eight members. Many were added to our numbers, and Mr. Abbott was acknowledged as pastor, and some months after I joined with him as co-pastor or elder.

The principles upon which we established Zion Chapel have been carried out by us till now, February 8, 1888, more than thirty-two years. Besides agreeing to support the cause among ourselves, the Lord has enabled us to help various institutions for the spread of the Gospel, especially of late, the China Inland Mission, which is conducted on principles which we entirely agreed with.

At present, through increasing infirmity and living at Mitcham, I can only officiate in the mornings of the Lord's Day, and now I am waiting, not impatiently I trust, until my own dismissal comes, very weakly, and perhaps never more so than when writing this, 22nd February, 1888.

[A simple record this of a noble and beautiful life. As stated in a leading journal, he was a true pioneer colonist, a veritable preacher and Pilgrim Father, who virtually came to this colony with a spade in one hand and a Bible in the other. Four years before his death he could wield an axe with many a younger man. Four years later he died, his whole life a Bible in itself, a message of good to all who knew or heard him.]

My Early Colonial Life.

BY THOMAS HARDEMAN.

My father and mother brought us out in the Lord Roderick. We landed at Holdfast Bay in April, 1838, and first went into a wooden house in Emigration-square. We afterwards shifted up into the Old Tiers (now called Crafers), and took a contract to put up a large cattleyard for Dr. Brown, of Lyndoch Valley. Mr. Crafer, after whom Crafers was named, was a shipmate of ours, and kept a publichouse in a wooden place opposite to where the present Crafers Inn stands now. Mr. Crafer made money fairly fast, and many worked at high wages for three or four weeks, and then came to Crafers to knock it down. The Tiers at that time were inhabited by a very low class of men, mostly "old hands" from New South Wales and Tasmania, and some of them arrant thieves, who often robbed the teams that stayed there for the night laden with food.

The roads at that time were in a very bad state, and nothing but bullocks were of any use. I knew one place on Pickering Pinch, on the Green Hill-road, where the two pole bullocks had to fix their feet and slide for about 6 ft. with a drop of fully 3 ft. One man was passing this spot, and his polers got their heads down, when their noses caught the ground and tipped them both over and broke their necks. The first few times yoking we had to pull them up to a post with a rope to yoke them, for they were as wild as birds, and mostly crossed with the buffalo breed of cattle. As there were very few fences they strayed about in all directions, and unprincipled fellows would collect all they came across, whether they were strays or not, and after putting another brand over my brand, they would sell them. We once lost one of the steers, and after two years found it in a team opposite the Exchange Hotel, Hindley-street, Adelaide. We found the owner had come by it honestly, having bought it from one of the dealers. My father produced his receipt, showing that he gave £20 for it, but he was too easy with the owner, and accepted the £7 the dealer got for it.

In the beginning of the year 1852 I went to Bendigo diggings, where we made a little, and the winter coming on we

came back to Echunga. Four of us made up a party to prospect for gold at that place, in the hope of getting the reward offered for the discovery of payable gold in South Australia.

The late William Chapman and myself had been mates on the Victorian diggings, and we then thought the country about Echunga presented very much the same appearance as the country about Bendigo.

After prospecting for some time we dropped on the gold on Chapman's surface hill, and after reporting the discovery to the Government, the place was heavily rushed. A good quantity of gold was got, and several that I afterwards knew realised £200 a man in five or six weeks; but the extraordinary richness of the Victorian diggings quite eclipsed anything found at Echunga, for men there have been known to make £2,000 in six weeks.

We tried to extend the Echunga diggings so as to fulfil the conditions on which the Government reward was offered, but as the Government would not give us the reward we memorialised Parliament, and they gave us £500, and left the reward still open. Dame Fortune was a very fickle goddess on the gold diggings, and appeared to take pleasure in tormenting me. For one spell of six months my mate and I sunk thirty-four holes, and only got $\frac{3}{4}$ oz. of gold, the depths of shafts being from 8 ft. to 70 ft.

We had then two claims—one we sank, the other we gave up. The one we sunk we got $\frac{3}{4}$ oz. out of, the other we gave up afterwards turned out 1 cwt. of gold. After this we had two claims again. The one we sunk we got 54 oz. of gold out of, the one we gave up gave 12 lb. weight to the man that came after us.

Then I went to the Teetulpa diggings; spent £25 on the trip and got 14/ worth of gold. Those diggings were about enough for 300 diggers, and 2,500 went to them. After this I went to Forest Range diggings, which turned out very poor, and yet I believe the largest nugget of gold that was got in South Australia was found there, viz., 49 oz.

The first owner of the Adelaide town acre on which the Exchange Hotel stands (Mr. Payne) was likewise a shipmate of ours. He owned the Payneham section, and gave it his name.

Sly grog-sellers were about in those days as well as now. A man named Miller kept a sly grog shanty on the top of Gleeson's Hill, which proved very handy to travellers to the Tiers, after slaving up the fearful hills. Mr. Crafer was very much annoyed with these shanties, and did all he could

to stop them. One day he got an Adelaide trooper to ride with him and go ahead to the shanty and ask for a nobbler (it being a hot day). Miller told him he did not sell any, but he would sell him a drink of water and charge him 1/ for it, as he had to carry the water a long way. The trooper agreed to pay, but before he began to drink the water Miller said he had some spirit he kept for his own use, and would put a drop in the glass to kill the water. He then poured a good stiff nobbler into it, so Mr. Crafer found that Mr. Miller had been too much for him.

My father kept some fowls in the Tiers, and a kind of squirrel used to kill them during the night. It would get hold of the fowls by the neck and suck their blood. We found as many as three birds dead in the morning.

The first substantial gaol we had was built by the firm of Borrow & Goodiar, and was not paid for for a long time, when they sued the Government for the money, and got a verdict for over £29,000. The firm owned Goodwood Park (on which the town of Goodwood is built) and adjoining lands, and I think also they were the owners of Parkside up to the Lunatic Asylum before the Glen Osmond-road was cut through the sections.

There were at that time some pretty well-stocked libraries, but being so far away from any settled population the charge for the loan of books was high. On the loan of a valuable book the deposit was as much as £4, which had to be left in the hands of the owner of the library.

A gold-digger's life was anything but cheerful in the early times. The tents were not very substantial, and sometimes a gale of wind came along and wrecked them. If a man was getting gold it was all right, but if he was unfortunate it was a dull and monotonous life, and very rough living. But later on, when people got used to it, they found the knack of making themselves comfortable.

Old Memories.

BY J. CHITTLEBOROUGH.

I arrived at Holdfast Bay with my parents in the ship "Buffalo" in 1836, and after my father got his goods and chattels landed we camped across the plains through the bush to the River Torrens, the site of the present gaol; and the first few nights slept in a sort of wurlie made of reeds cut from the river, until my father put up a reed hut in Buffalo Row, which was situated midway between the present slaughter-house and the Gaol. Coromandel Row extended towards the present sheep market, where Colonel Light and James Hurtle Fisher had their camps and tents.

While living in the Row, John Barton Hack arrived in the colony, bringing with him a variety of stores and merchandise, a quantity of which he sold to my mother, who opened a small store in the Row, and this was, I think, the first store in the colony. Unfortunately, our reed premises one night caught fire, and were burned to the ground; being dragged out of our beds while asleep, we were barely saved, and everything was burnt. Many of us had nothing to wear, and were dependent on the kindness of our neighbours for clothing, who rendered all the assistance they could from their own limited stock; the Fisher family in particular greatly helped us. I cannot here forbear mentioning the great kindness of John Barton Hack (who had supplied my mother with her stock), and although we were somewhat in his debt at the time, directly after the fire he called on my mother, and tried to cheer her up, offering to start her with another stock as soon as she had a place ready. He kept his word, things prospered again, and this memory will always live with us.

I have a very vivid recollection of the hanging of the first man (I think his name was McGee) at the foot of North Adelaide Hill. The culprit was brought in a cart and driven under the branch of a gum-tree, to which the rope was attached. The cart was then driven on, and after the culprit had swung out of the back of the vehicle the hangman jumped on his horse and rode away. The man kicked and struggled, and the crowd became very excited, and cried "Shame!" A policeman then galloped off to bring the hangman back, who, when he returned, had to pull the man's legs to finish him.

In those early days, when we lived in Buffalo Row, a good

sized bell was fixed up (by Colonel Light) on a post between the Colonial Camp and the southern end of Gray-street, near where the Buck's Head Hotel now stands; and the bell was rung every day at 1 o'clock. Persons who now look at the Park Lands and River can have no idea of the beauty of either in their natural state. The River then was very pretty—a chain of large pools or waterholes, with trees, reeds, rushes, and shrubs growing all round the edge; and these large ponds extending across to the present outer banks, some being quite 200 yards long. Over one of these waterholes, near where the present weir is, there was a punt, in charge of Mr. Rogers, worked by a rope fixed across the river to take passengers across when it was in flood.

Near the banks of the river was a regular camping ground for the blacks, whom the whites designated as the Adelaide tribe. They held frequent corroborees, and also had various games of their own, some of which took the form of a friendly contest when the natives of another tribe visited the locality. But once at a distance I saw a regular pitched battle near Hilton between the Adelaides and a tribe that came from the hills, somewhere about Mount Barker. The women also took part in the fray, using their cuttas, or yam sticks. One native was killed, and some others wounded by spears and other weapons. Nearly all the white young people learned to talk the Adelaide tribe language, which is of a very limited nature, and several knew it well enough to converse with them.

Early Days in the Colony.

BY THOMAS BATTERSBY.

I am an old pioneer, but as unsuccessful as any one in the colony, through misfortune that could not be avoided; but fortune is not for all, nor the race for the swift.

I came out with my father in the "Prince George," and we landed on New Year's Day, 1839. When I was at the Bay I saw George Bates, who lived on Kangaroo Island, with his black gin and two little half-caste youngsters. He had left an American whaler, and landed on the island.

My father brought out from England a wooden house painted like brick, and sold it to Mr. Bray, a master shoemaker and shipmate of ours, who put it up for a shoe shop in Hindley-street. In those days I have seen the mud in Hindley-street knee deep, so that a boy might have been smothered in it. I often wondered at my father coming here, for he was doing very well in England, generally earning £3 and £4 a week at his trade of carpenter, cabinet-maker, and silversmith.

My cousin, Henry Parkes, kept on writing to my father to come to Sydney. He was a great man for politics, and became Premier of New South Wales, and was titled Sir Henry at last. My father did not care to leave England; still, to please Sir Henry (though he was not knighted at that time), agreed at last to go; so we sold out and came to Adelaide, and then wrote Sir Henry that if this did not suit we would go on to Sydney.

Father got work at Mr. Elphinstone's, carpenter and builder, adjoining the Trinity Church yard, North-terrace. He was known at that time by the name of Diabole, for he was a drinking man, which brought headache in the morning; and through not keeping sober he failed. I was kept to go on errands, and to go to Mr. Monck at the cemetery to tell him the size of the graves to sink, for all the coffins were made at the shop. Mr. Monck was proclaimed sexton when the Town Cemetery was first started.

Then we went to Mount Barker, building the manager's house, men's huts, and stockyards, for a dairy station, just

between Mr. Hack's and Hahndorf, on the "Three Brothers Survey," not far from Mr. McFarlane's cattle station. Mr. Shepherdson was manager then, and Mr. and Mrs. Robert Rankine were head dairy people. Then we went to live at Houghton village, and lived there a good few years, and afterwards at Gumeracha, sawing timber for the builders. Then came here to the North, where I lost my little all, and am now getting too old to knock about; still, thank God, I am able to do all my own work, such as wheelwrighting and carpentering, and anything.

I am seventy-four years old, and have been in the colony sixty-three years. I knew Mr. Thomas, that started the first printing office just behind the Royal Oak Hotel, in Hindley-street, where, I remember, I had to go for the newspaper.

Recollections of Early Days and Old Colonists.

BY WM. PEDLER.

I well remember, coming home from school one day, seeing a gentleman from London with my father; that gentleman was John Hutt, Esq., the Emigration Agent and one of the founders of the colony. Through his persuasion we sailed from Falmouth on September 25, 1837, and cast anchor at Kangaroo Island on January 14, 1838. The next day we sailed on to Holdfast Bay. The longboats carried our luggage ashore, and the seamen leaped into the water and carried the people on their backs to dry land.

On landing we were sheltered in a tent belonging to the Commissioners, made of old sails. Nothing could be done but to make the best of it under the circumstances, and as there was a large cask lying on its side, my mother got into this cask, and took the three youngest children with her. I being the eldest had to shift for myself as best I could, so I stretched myself on the spars on the side of the tent, and as I could not keep warm I longed for the morning. The wind was blowing very cold from the hills on that night of the 20th January, 1838. The morning came at last, and we were conveyed to the iron store at the foot of Montefiore Hill. From the iron store we went to Emigration-square. These houses were built for two families, a door at each end, so they lay side by side with only the boards between them. My father licensed an allotment in Leigh-street from Mr. John Morphett, on which he erected a sort of mud hut. After living in Leigh-street, my father and another bootmaker got a seven years' lease of the first auction room built in South Australia by Mr. Robert Cock and Mr. William Ferguson. Close by Leigh-street the present site of the Galatea Hotel was first occupied by Mr. H. J. Shepherd's grocery store at the corner, a good weatherboard building, and Mr. John Bentham Neale's auction rooms, with a back entrance from Rosina-street. My father and his partner had the same right-of-way. We could look through the boards and see Mr. Neales conducting his sale till 9 o'clock on Saturday nights.

I knew Mr. Robert Thomas, the founder of "The Register," and his son also, and have been in the printing office when it was off Hindley-street. The Port Lincoln "Herald" was

printed, and I was sent round to try to sell copies, but met with indifferent success.

I saw the houses of Mr. (afterwards Sir) James Hurtle Fisher and of Colonel Light before they were destroyed by fire on or near the site of the present market yards, and I saw the funeral of Colonel Light and remember looking at the bricklayers working at the vault. The first minister I heard preach was the Rev. Thomas Quinton Stow, in the first Congregational Chapel on North-terrace. In politics I took the side of those who opposed the grant in aid of religion, and also supported those who were for no taxation without representation, vote by ballot, and manhood suffrage. I supported Mr. William Giles, Sir R. D. Hanson, Sir Arthur Blyth, and generally those who have been returned for the District of Gumeracha, in which I reside.

Mr. J. B. Neales, Government Auctioneer, succeeded Mr. Richardson as auctioneer when he went to the Exchange corner. When I was in the auction rooms Mr. Frederick Wicksteed, at one time a well-known accountant in Adelaide, and Mr. George Debney did the clerical work, and Mr. Henry Heard was warehouseman. Mr. T. C. Bray commenced business as a boot and shoemaker, and by industry and business tact his progress in its ratio was like one in geometrical progression. From there he carried on a thriving trade at the second door eastward from Rosina-street. As the years rolled by there was a family of two sons and two daughters, and I remember Mr. Bray taking his two sons to England to complete their education, after beginning at St. Peter's. The journeymen shoemakers of that time considered they had a grievance in having to compete with imported goods, so they combined and set up business on their own account, and had the best work of colonial manufacture displayed in their window, the principal attraction being a caricature by Opie, the scenic painter, which in its conception and execution was first class. While looking at the picture one day one of the men came outside, and a man standing near me asked what it was all about, and he replied, "The devil among the shoemakers." In Mr. Bray's shop in Rosina-street, on calico, were the words, "Competition prevents imposition," apparently as a counterblast to the caricature.

My father, besides doing his own work, helped to fill up Mr. Bray's shelves with colonial work for many years, and the process of clearing them went on by sending the shoes in quantity to the different stations.

My father worked at his trade of shoemaking for one Mr. Draper soon after his arrival, while residing in Emigration.

square, for 10/ per day. I do not know what cash he received, but I know that he took a pair of boot trees as payment for £5. In the second half of 1838 my father left his trade, and with some others opened a quarry near the foot of the hills, at the First Creek, and as a working partner with the following gentlemen: Mr. C. B. Newenham, Sheriff; Mr. Nixon, Surveyor; Mr. John Gleeson, and the Hon. B. T. Finniss. The working partners were Wm. Pedler, John Bankhead, Thomas Richards and Wm. Hamlyn. They discovered good slate on the surface, with well-defined lines of lamination, but on work it it became solidified. Mr. Gordon, the architect for the leading contractors of the day, said that it was good for hones for sharpening plane irons and carpenters' tools generally. My father made a great mistake in leaving his trade to work at the quarry, and after some time returned to his own trade; but the best work had then passed into other hands. I might here mention that my father made the slippers in which Mr. John Hallett danced at Mr. John Morphett's wedding.

I used to see small flocks of wild turkeys west of Adelaide. and the large gum-trees in the Park Lands swarmed with paroquets and rosella parrots, and the crested cockatoos when they alighted would cover the top of a gum tree.

I remember once a native woman saying to some of the arrivals, "You go to England, that your country; this our country."

Police Experiences with the Natives.

Reminiscences of the Farly Days of the Colony.

BY THE LATE JAMES McLEAN, of Mounted Police Force and Sheriff's Officer, Adelaide.

I am the youngest of five brothers, and was born in August, 1818, in the Parish of Maine, County Westmeath, Ireland, and came to this colony in the ship "William Nicol," of Glasgow, captain and owner, William Elder, belonging to Kirkaldy, one of the most gentlemanly men I ever met. His crew also were all Kirkaldy men (having sailed with their captain from his apprenticeship) excepting the chief mate, Mr. Thomas Ferrers, who was the only Englishman on board. Our doctor, David Moor, was from the County Tyrone. The cabin passengers were a Mr. David Sutherland, wife and young family; also Mr. Sydney Bernard, son of Dr. Bernard, the Emigration Commissioner in Dublin. We had two hundred emigrants on board. They were from nearly all parts of Ireland. Also as passengers Mr. Robert Bruce and Mr. William Reid (father of Inspector Reid) and their families. We made a quick passage of ninety-seven days, having sailed from Kingston on March 31 and landed at Holdfast Bay, South Australia, on July 6, 1840, all well. Captain Elder got me into the Mounted Police on September 29, 1840. At the time I joined the force consisted of Major T. S. O'Halloran (Commissioner), Alex. Tolmer, Esq. and David Gordon, Esq. (Inspectors), H. Alford, H. Dean, and J. Eastop (sergeants), Daniel Swaffer, T. Naughton, and W. Freestone (corporals), besides saddlers, farriers, and twenty troopers, of which I was one. My first night in barracks I had to mount guard over a prisoner named Billy Bist. He was taken that day on board a vessel at the Port dressed as a woman.

The first place I was sent to was Encounter Bay, and arrived there on October 23, 1840. This was a lively place. The whaling station had been doing well, and there were stationed here Sergeant McFarlane, Constables Ward and Smyth. The latter was a shipmate of mine, and had joined the foot police. A station was just formed at Goolwa; the men there were Creery, Paynter, and Wells. They belonged to the Mounted Force, but as yet had no horses. This was immediately after

the wreck of the "Maria," and the murder of her crew and passengers. For so doing Major O'Halloran hanged three of the natives on the ground, where they committed the murders, and left their bodies hanging as a warning to others.

My duty was to convey despatches from one station to another. I was sent on one occasion after a native who had killed a native woman. I found a blackfellow and two lubras encamped on one of the sandhills near the mouth of the Murray. He told me the man I wanted had gone across the river and proceeded up the eastern branch of the Murray to the Island of Towagirie, where they were going to have a grand corroboree, so I left and rode back to the bay, when the sergeant sent Ward and Simmonds next morning with me, and ordered us to get two of the Goolwa men and the boat, and go up the eastern branch. Our party in the boat consisted of Ward, Simmonds, Paynter, Wells, and myself, besides the boat's crew of blacks, Peter, Solomon, Encounter Bay Bole, and Joe. When we landed on the first island the natives crossed over to another, and we pursued them up to our necks in water till we came up to them, where they had a large encampment, but the black we wanted had crossed the river to the sandhills, so we had to give up the chase for that night and make a wurley, light a fire to dry our clothes, make a pot of tea, and cook fish. Seeing nothing of the man we wanted, we returned to the station. Nothing particular occurred here until I was called to head-quarters to attend to the opening of Port Adelaide. This was a grand affair. The Governor, Colonel Gawler, and Major O'Halloran were in full uniform, and every man we had was mounted, and from the figure some of them made it was plain that they were never on horseback before. Allworthy, the assistant saddler—his horse could take him anywhere—and he kept galloping through the crowds with the muzzle of his carbine scraping on the ground, until at last he rode over the old Harbormaster, Captain Lipson, and knocked him down. Most of the troopers got to barracks a little after dark, but through the jollifications we lost several on the road; but they kept arriving at all hours in the night, and some not until stable call in the morning. So ended the memorable opening of Port Adelaide.

A few nights after the opening of the Port, as we were preparing for bed, there appeared a great glare of light, and immediately after the man on sentry called out, "Turn out; Government House is on fire." We were on the spot in a few minutes, so was nearly every person in Adelaide.

There were two engines, the South Australian Company's and the Police, but they were of very little use, as the premises

were composed of "wattle and dab," and thatched with reeds (all done by the sailors and marines of H.M.S. "Buffalo"). It burned as if it were flax. There were several narrow escapes through guns and pistols exploding, also powder canisters. Nearly all the papers connected with the Government business were destroyed.

The next event worth noticing was a case about the French ship "Ville de Bordeaux." It being Sunday, we were at Church (Trinity), in the midst of the morning service, and heard the clanking of a sword, scabbard, and cavalry spurs, which caused us to look round, when we saw the orderly for the day. The wave of his hand was sufficient to make us all turn out, leaving the minister and congregation to wonder what was the matter. We found the horses all ready for us at the Church gate, and learned that the French ship had sailed away from Holdfast Bay with sheep and other cargo, which was a breach of the navigation laws. She also took away Mr. John Anthony, Customs officer, who was on board on duty. We made no delay in mounting and getting to the Port, where Mr. Torrens, the Collector of Customs, had the steamer "Carrier" ready to receive us, having her crew and provisions on board and her steam up. After we got out in the Gulf we sometimes went very well for a few hours, then had to stop for an hour puffing and groaning, as the fuel was very little good, being the shingles that were used for the roofing of Government Bonded Stores. In this manner we kept knocking about the Gulf and Troubridge Shoal for two days and two nights, but no French ship could we see, so gave up the chase. When we got in sight of Holdfast Bay there was the French ship at anchor in her old position, the captain having regretted the step he had taken.

The sheep were landed and taken charge of by a trooper, the vessel was brought round to the Port under seizure, and the crew taken to Adelaide, and quartered in Captain Ferguson's iron store in Weymouth-street, pending the decision of the Court. The supercargo shot himself in Grenfell-street. The case was referred home to be settled by the Admiralty and the French Government, and the vessel was subsequently converted into a light-ship, and afterwards broken up.

In the month of January, 1841, I was dispatched, along with Inspector Gordon, Sergeant Alford, Troopers Prewett, McCulloch, and Lane, to form a station on the River Wakefield. Mr. John Horrocks and Mr. E. B. Gleeson having settled there with their stock. We halted to camp near the River Light, where we killed a young kangaroo, and cooked part of it, and next afternoon camped at Macaw Creek. This being

McCulloch's first two nights in the bush, he could not sleep, and was standing at the fire at daybreak having his smoke, when he was startled by a number of laughing jackasses, who were in a limb of one of the gum-trees. He never having heard these birds before, commenced to laugh also, and the more the birds laughed the more did he, to the amusement of us all. Next day we halted on the Wakefield Plains at a large waterhole, and remained here for three days, until our baggage came up with Mr. Gleeson's teams. A number of the sappers and miners, with laborers, tents, and baggage to commence a survey party, also arrived. After this we went up to a bend of the river, where Mr. Gleeson had several flocks of sheep. His overseer, Sandy McDonald, and his wife were here, and a number of coolies shepherding. Here we erected a large wurley or shed for our cooking place. One afternoon we saw coming along the banks of the river two horsemen. When they got up to us the eldest asked if it was a survey camp. I replied it was a police camp, when he introduced himself as Captain Bagot, and the younger man as his son Christopher. As a matter of course, we made him welcome, and were glad to do what we could for them and their horses. He said he had only just arrived in the colony, and was then on the look out for a likely part of the country to settle on.

Captain Bagot was of opinion that there was no land fit for cultivation between Adelaide and Mount Horrocks. Prewett and I arranged that night to go with them as far as Mr. John Horrock's place, on the Hutt River. We then started for his station, and remained there for the night, and next morning the captain and his son started on their exploration. Prewett and I likewise started on a day trip taking a circular route through the ranges. West of our camp I never saw a prettier country; nice sloping hills down to the banks of a creek of running water as clear as crystal. The hills also were lightly timbered with sheoak and honeysuckle, and wattle in full bloom, the scent of which was delightful; and the grass everywhere was up to our saddles, no cattle having as yet found their way to it—only the kangaroo, wombat, and opossum. I believe there had been one or two exploring parties. When we arrived home we found Lean and some sappers enjoying themselves. Lean, who had been a Cornish miner, went about in his spare time picking up small stones round the hill at the back of the tent, and declared that there was plenty of copper ore to be found. I laughed at him, not knowing anything of minerals, though old Menge, the mineralogist, had previously declared that South Australia was a copper-bearing country. Lean was correct about what he found, for several years afterwards Messrs. G. & G. D. Young, who had

purchased the land, opened several shafts and spent a deal of money, and always found copper ore, but not in quantities to pay.

I had a little dog, who spent the greater part of the day hunting snakes. Sometimes he would come home with his head very much swollen; but after a day's drowsiness he would get all right and be off again hunting, to return in the same state.

Prewett and I went to Mr. John Horrocks to learn something of Captain Bagot and his son, it being a week since they left, and they had not returned. Mr. Horrocks was also uneasy about them, and got his horse ready to start with us, but while we were preparing to mount, the father and son just emerged from the valley where we last saw them enter on their outward journey. When they joined us the captain declared he saw no country fit for either agriculture or depasturing stock.

Shortly after this Mr. Gordon came with orders to take me back to town; and next day, February 27, 1841, we both started, taking a circular route by the head of the Gilbert and over the range by the Butcher's Gap. The following day we called at Dutton's sheep station, on Allen's Creek, proceeding on to where Captain Bagot had just arrived and pitched his tent. We continued our journey to Mr. Ned and Bob Leak's, where we stopped for the night, the next morning starting by way of Walker's Creek to Gawler, and then on to town. On the following morning news arrived that the natives on the River Murray attacked Mr. Inman's party on their way from Sydney, and had speared Mr. Inman in several places very badly, also taking all the sheep, about seven thousand.

The day this report reached Adelaide we had just buried one of our men, who died very suddenly. The following are the particulars: B—— was an atheist, and on the previous Saturday, while on parade, Inspector Gordon gave orders that the Governor requested that every man except those on duty should go to Church regularly. This angered B——, who swore after he went into his tea that he hoped he might drop dead before he would go to Church. He slept in the same room with me, and was last on guard on Sunday morning. It was his duty, being on morning watch, to call the trumpeter at 6 o'clock, and for this purpose he came into our room, where the trumpeter also slept. Immediately after calling him I saw B—— reach down his carpet bag and then fall down. I called to Alphy to see what was the matter with him, when he replied he was in a fit. We got him on a bed, and one of the men rode as fast as he could for the doctor but B—— was dead in five minutes after he fell. Another

strange occurrence came to our knowledge. About six months after his death there came a letter directed to him from his father, and stated that his sister, who was also an atheist, was dead, but had renounced atheism before her death, and her last request was for her brother to do the same. Comparing dates, it was found that both had died on the same day.

On April 17, 1841, the force being collected, they started for the Murray, having Major O'Halloran (Commissioner) at their head, with Inspectors Tolmer and Gordon. I followed after them the fourth day with despatches, and overtook them at the Nancoota Springs, the Murray side of Mount Rufus. We proceeded on our journey merrily, keeping with the baggage, the Major taking the opportunity at every plain we came to to have us drilled; and after we got to the Murray everything was regularly arranged as to our general duties.

We went forward for nearly a fortnight, and when within one day's march of where the encounter took place between the natives and Inman's party we were overtaken by Trooper Kufe with despatches ordering the Major to return with the whole party to Adelaide forthwith as Governor Grey had arrived. The Major very reluctantly had to obey orders, so we all returned to town, but found out afterwards that if we had gone on for one day's march we should have recovered several thousands of the sheep. After a week we started again, augmented by a strong force of volunteers, consisting of Captains Ferguson, Berkeley, Berry, and Daniels, also Captain Field's brother, Messrs. B. T. Solly, Edward Bagot, James and Charles Hawker, Jacobs, James, and Charles Fisher, and several others well mounted and armed. We also had five bullock teams loaded with baggage, and our light cart as usual carrying our day's supply, all guarded by twelve foot policemen. We arrived at the place we previously camped on without any mishap. When we got to where the attack was made we found several large holes filled with dead sheep. Had we gone on at first we should have saved the sheep, as they did not appear to have been long dead.

We saw plenty of natives, but they always took to the river and swam across, and we dare not fire on them. We halted here, built a strong stockade round our tents and baggage, erected a flagstaff, and hoisted a flag on it every morning at gun fire. The Major called it the Hornet's Nest. From here we scoured the country nearly every day, and had several sharp gallops after the natives, but they always took to the river and crossed over.

When we were within five or six miles of the Rufus we met

Langhorne's bullock team, with Mr. Miller lying in it in great pain, having seven spears in him, the barbs still being in the wounds. The men with him informed us that while crossing the Rufus they were attacked by the natives, the cattle dispersed, and the remainder of the party killed with the exception of two cowardly rascals who, though better armed than the others, ran away at the commencement.

The place where the attack was made was at a bend in the Rufus, which was then called Langhorne's Crossing. There we found the bodies of three men with their thigh bones extracted and carried away. We dug a grave and put the bodies into it, Major O'Halloran reading the burial service of the Church of England over the grave.

We then proceeded up the river to the lake, and on our way we saw some broken guns and other things belonging to the party. When at the camp we saw a number of canoes out in the centre of the lake, and when night came on we could easily count them, as each had a fire in it. We kept a good watch all night, but in the morning there was not one canoe to be seen.

The natives will never show fight to a number of mounted men, particularly if they have swords, which they dread far more than the carbine. Next day we returned to the Hornet's Nest, where we caught one black, and took him to the camp. We called him Jim Buck, the name the natives give the sheep. When we arrived at the camp we found everything all right and Miller getting on nicely.

Soon after this we bid adieu to the Hornet's Nest on our way homewards, and our black prisoner, who had a rope spliced round his neck, ran behind the cart.

We arrived at Captain Bagot's thirteen days after we left the Hornet's Nest, and nothing occurred worth notice on our homeward journey, excepting a little matter with our black-fellow, who at one time we thought was done for. He was running on a cattle track alongside the cart, but went the other side of a sheoak tree by mistake; but instead of breaking his neck the new rope snapped as if cut by a knife. He picked up the fallen end of the rope and called to the driver, holding up the broken piece. Those in the cart felt the sudden jerk, but thought it was caused by the cart getting into a rut in the road. On examining the black we found that it had only ruffled the skin on his neck. We arrived at Gawler and stayed for the night, and after eating something made another start next morning, and got to barracks by 3 o'clock.

Four new men had joined while we were away. Those took

charge of our prisoner, but they had had too much ale, and forgot all about him, and all of them went to sleep. The poor black, not seeing any of us (his old mates) laid his rope across a fire stick and freed himself, and was not missed until the morning, when Paddy Pike gave the alarm; but we were unable to fall in with his tracks, so that nothing was seen of the native after.

We now commenced regular town duty, and Spencer and I were told off as orderlies to ride after Lady Franklin, Mrs. Grey, and His Excellency as they went out daily.

After this I was sent to form a new station on Julia Creek, as the natives had been troublesome at Dutton's and Bagot's sheep stations. Our duty was to patrol as often as convenient to the different stations on the Light, the Gilbert, Burra Creek, and Mount Bryan, Mr. John Hallett having just got his sheep there.

On our rounds Dawson was continually picking up specimens as he called them, and carrying them home in his holster pipe, having to cross the ground where the Burra Mines were afterwards discovered every fortnight. He always picked up some stones there, and I saw plainly afterwards that Dawson was the first discoverer of copper in the Burra hills.

The first races held at Clare came off this week. Dawson and I were at them. We there met Donald Stewart, and Lamb, who were stationed at Bungaree. There was some good sport, and no publican's booths; but the race committee had plenty of spirits and ale and porter and wine, which they got up from town for the occasion. The promoters were E. B. Gleeson, George and Charles Hawker, J. B. Hughes, Charley Green, Harry Rice, John Horrocks, Hogden, "Stein," and Jacobs. Clare was not laid out as a township then, and there were no houses but Mr. Gleeson's and a shepherd's hut at the Twins waterhole.

Dawson and I went home with Donald and Lamb to their station at Bungaree, and made an early start for home, coming across the racecourse. Then we proceeded across the Hill River Range to J. B. Hughes' station at the Springs, near Mount Horrocks, where the E. & A. Patent Copper Company have now their horse paddock. Next we passed our old station on the bend of the Wakefield, near where the township of Mintaro is now. From here we steered for McGinness' stone chimney hut, where we stopped for the night at what is now the township of Saddleworth.

When our six months here were expired we were relieved by Eastwood and Carter, when Dawson and I proceeded to head-

quarters in Adelaide, and again commenced town duty, such as Governor's orderly, stable guard and serving summonses from the Police Court, Jury summonses from the Supreme Court, and attending drill when not engaged on other duties.

Governor Grey was now about taking a pleasure trip with Mrs. Grey and party to the South. The party consisted of His Excellency, Mrs. Grey, and Mr. Godfrey Thomas (the Governor's Private Secretary), who was step-brother to His Excellency. The first day we stayed for lunch at Major O'Halloran's, and rode on to Willunga in the afternoon, and next day, after visiting the State quarries and other places about the township, we started for Encounter Bay. From here we rode out daily, visiting the whale fishery and a few settlers that were there, viz., the Rev. Mr. Newland, Mrs. Keeling, Mr. Helmore, and Mr. Matthew Moorhouse, who was staying there after his marriage. A few days after we moved on to Goolwa, where we remained three days. Mr. Thomas and I got dogs from Captain Pullen and survey party, when we had good sport, and killed three large and one small kangaroo. This place was called by the surveyors "Port Pullen" or "The Elbow of the Murray," but the natives called the river "The Rawie" and the land "The Goolwa." The fourth day we returned to Encounter Bay, where we stayed for the night, and left next morning by way of Yankalilla, there halting at Captain Field's for the night, and in the morning started for Henry and Frederick Jones' Station, "Rapid Bay." The last day we were here a native woman was bitten on the ankle by a whip snake. The men took her immediately and made a shade for her about 300 yards distant from the wurleys. On asking them the reason why, they said, "By and by that one 'crackaback' (dead) when sun go down," and the poor creature did die in great pain in the evening.

Next morning struck tents and started for Adelaide by way of Willunga. After proceeding a mile or so we came to a house, in front of which was a honeysuckle tree with a board nailed to it notifying that tea and coffee were to be had at all hours; and His Excellency and Mrs. Grey said they would stop there until the cool of the evening. After the Governor had been talking to the proprietor for some time he ordered dinner for the whole party, including those coming behind us. The Governor and Mrs. Grey retired to the shade of a tree, and Mr. Thomas and I went into the house. I was greatly surprised to find Mrs. Clark was a shipmate of mine, her maiden name being Taggart. She was quite glad to see me, and got a first-rate bush dinner ready in a short time. I

rather suspected that they sold a little hard stuff on the sly, for when I took the first sip of my coffee it brought tears to my eyes. Mr. T—— saw this, and said, "I wish Mrs. Clark was a shipmate of mine; if so, I think she would put cream in *my* coffee." Mrs. C—— then saw things were all right, and she gave *him* cream also.

I had to ride back to meet the cart and dray and inform those with them the road we had taken. When they arrived at Clark's there was a plentiful dinner ready for them, and after they had dined they again started ahead of us. We did not leave until the cool of the day, but before we started Mr. T—— and I had some more of Mrs. C——'s cream. I think Clark lost nothing by His Excellency calling, for when asked for his bill he said he thought about £1 would pay him; but the Governor paid him two, and I saw Mr. Thomas also give Mrs. Clark something yellow for her trouble.

We arrived at Willunga at sundown, and came at a splitting pace to town, and passed in through Government gate before the sentry had time to turn out the guard. Again commenced the regular routine of town duty every day, and also drill.

We had been on the lookout for some time for Big George Dwyer, an African, who had made his escape from the Gaol. He had been on Kangaroo Island, but we got information that he had come back to the mainland. One of our men saw and fired at him, but he could run like a deer, and he got clean off. I received instructions to go through the country and see what I could do. I started next day in disguise, and got as far as Mrs. Neal's, "The Travellers' Rest," Houghton, whom I told that I had left the police, but got a Government job to take the agriculture and live stock statistics. She told me Dwyer was there on the previous night. I heard enough to convince me that I was on the right track, so I asked but few direct questions about him, and proceeded on to Mr. W. C. Spicer's at the Chain of Ponds, all the time keeping my eyes open. Mr. Spicer asked me to stop to dinner, so I walked out with him while it was preparing, and saw Dwyer's lubra, whom I knew at once. She went into an old dairy dug out of the bank of the river, which confirmed my previous opinion that this was Dwyer's place of abode. I hastened on to barracks and reported progress. So it was arranged that I should guide Mr. Tolmer and a party of men on the Saturday night, and be there by Sunday morning at daylight.

The party told off with Mr. Tolmer was Sergeant Alford, McCulloch, James Hall, Dawson, and myself, and we arrived on the bank of the river east of Mr. Spicer's house about 5

o'clock, when Mr. T—— decided it best to remain there until daylight. It was arranged as soon as it was light that Mr. Tolmer, Alford, McCulloch, and Hall should take the north bank of the river to a ford opposite Spicer's door. Then Dawson and I were to cross the river and come in at the rear of the house. When we saw the rest coming up in front. Mr. T——'s party started first, Dawson and I afterwards, and halted in the rear of the house. At this time we heard the clashing of the other party's sword scabbard against their spurs, so we knew they had taken the wrong road, and as Spicer's dogs were also alarmed, and seeing there was no time to lose we decided on making the attempt ourselves; so Dawson and I started at racing speed, and on coming round the corner of Mr. S——'s house I saw Dwyer's head thrust through the roof of the dairy. I called to Dawson to come on, as Dwyer had forced himself through the roof with nothing on but a shirt and vest, and carrying his trousers in his hand. He leaped into the Torrens, but as my horse took the water in fine style I got over nearly as soon as he. Dwyer made for the opposite cliffs; but I headed him, when he dropped his trousers and made back for the bend in the river, where there was a deep hole, into which he plunged. Seeing it impossible to follow him with the horse, I dismounted and got on to a dead tree that was lying in the river, and before he could get up the opposite bank I leaped from the tree astride on to his back, when he turned over and tried to get me under the water. I could get no hold of him for some time, he having no clothes on but a vest and shirt, and his hair was cut quite short, but at last by chance I got hold of one of his legs, until Dawson got to my assistance and caught him by one of his hands. At this time his lubra came, who was nearly as powerful as himself, and the first thing she did was to get hold of his shirt and vest and try to tear them off him. I told Dawson to draw my sword and use it on both of them if they did not give in, as I was afraid one of them might take it while both my hands were engaged. Dawson then said to Dwyer, "George, if you don't surrender, we must disable you." He answered, "I'll die first." And then, as he made another effort to free himself, I said to Dawson, "Let him feel the sword." Dawson then gave him a cut across the loins, which made him still more desperate. Then D—— gave him a dig between the ribs, when he immediately fell and called to "Maria" to bring him the Book of Common Prayer! Dawson and I held him down while I passed my sword belt twice round his neck, which gave us a good hold of him, for neither of us had our handcuffs with us, as they were in our holsters.

We then got Dwyer on a door and carried him into Spicer's house, he praying all the time to try and make us think he was dying. I then told Mr. Spicer that I would hold him responsible for the safe keeping of our prisoner, and to assist Dawson in any emergency, while I was absent after the horses. On my way I saw Mr. Tolmer and his party coming up at full speed, they having taken the wrong road at the commencement, and went a circle of ten miles through the hilly country. I told Mr. Tolmer that we had Dwyer all right up in the house, so they galloped on. Hall assisted me to catch the horses, so that I got back soon after Mr. Tolmer had gone.

We then procured a bullock dray from Mr. Fordham, got our prisoner into it, and started for town. When we got to the cleared road we left McCulloch and Hall to guard the prisoner, and Mr. Tolmer, Alford, Dawson, and I started for town, as Mr. Tolmer was in a hurry to report the case to the Commissioners, and to send out Dr. Nash to meet the wounded prisoner.

We came along at a hard canter from town, and sent out the doctor, after which Mr. Tolmer, Dawson, and I went to the Commissioner's office and made our statement of the whole affair.

The doctor met the guard with the wounded prisoner just as they were coming into Teatree Gully, and after examining the wounds he said that they were but "flesh deep, and mere scratches." When McCulloch heard this he immediately slipped a pair of handcuffs on to him, then passed a chain round them and round the tail of the dray, locking the two ends with another pair of cuffs. This was not done a moment too soon, as Dwyer got better at once; and seeing there was no use shamming any more he sat up and told them that his intentions were when passing this very spot to throw himself off the dray, and run down the steep gully, and risk a shot or two, as he knew that the horses could not follow him. But the timely arrival of the doctor frustrated all his plans. He arrived at barracks in the afternoon, and was forwarded to his old quarters in H.M. Gaol, and at the following sessions he was sentenced to fourteen years' transportation to Van Diemen's Land.

Next day after his capture His Excellency gave a reward of £25 for his apprehension, to be divided amongst us; but Mr. Tolmer came forward with the three shares in his hand, and said, "McLean and Dawson, you are the parties who deserve this, so I make you a present of my share."

My first journey to Port Lincoln was in the month of June,

1842. The natives were very troublesome in the Port Lincoln country. They had murdered a sheepfarmer named Brown and his cook and his housekeeper, who was wife to the overseer named Stubbs. Stubbs escaped after they had left him for dead, and whom I afterwards saw when a piece of a spear was extracted from his eye, the eye coming with it.

The leader of this murderous gang was a fellow who was always kindly treated at the station by Mrs. Stubbs, who daily dressed a badly burnt foot he had until it was cured, and this is how he paid for her kindness—by murdering her.

On hearing the sheep coming home at sundown the rascals retreated, and it was then that poor Stubbs made his escape, and went to Mr. White's, at Talala, and reported the whole affair.

On the news reaching Adelaide, Governor Grey lost no time in making arrangements to send protection to the settlers, and Lieutenant Hugonin, one sergeant, one corporal, and sixteen privates belonging to the 96th Regiment were ordered to prepare to embark forthwith for Port Lincoln; and I was the trooper selected.

We sailed in the South Australian Company's schooner "Victoria," commanded by Pilot Benjamin Germein; and after very rough weather and a long passage of eight days we got to anchor in Boston Bay on a Saturday night about 11 o'clock, when Mr. H—— sent me ashore accompanied with Pilot Germein and two of his crew.

On the second day we started to scour the country for the natives. The party consisted of Mr. Driver (Government Resident), Lieutenant Hugonin, Mr. Sam and Fred White, Captain Hawson and his brother Tom, Medithan (a mason), McEllister, Swaffer, and myself, with Constable Innes driving his own horse and cart carrying our rations and tents; also Mr. Hugonin's servant, Lacy, and Big Jack, a native guide. We proceeded by Mount Gawler to Mr. Biddle's station, the scene of the late murders, then to Pillawarta, where we stopped for the night, and next day through the Downs and new country, where we fell in with some natives, who told us that the blacks who committed the murders had fled to the interior across the Marble Range. We took one of these with us as guide, and after a day's preparation we started again with the soldiers, tents, stores, &c., and formed a camp at the Fountain. From this place we made several excursions, and next day we halted to camp for the night in a dry gully on the plain, and while we were preparing supper our black guide disappeared as if he had sunk into the earth. Immediately the soldiers

and Adelaide natives ran in all directions, but he was nowhere to be seen, though there was neither bush, stump, or rock to hide him.

After this we again scoured the country for some days until there came a letter from Mr. Driver, reporting a large number of natives camped on the Peninsula south of Port Lincoln proper. We then broke up camp and marched for Port Lincoln, and arrived there the next day. Old Harker had his cutter ready, assisted by Captain Bishop and Hawson, who accompanied our party, which consisted of Mr. Hugonin, Sergeant Holder, and ten soldiers, myself, and my two blacks.

We sailed up the Proper until we sighted their camp, then landed under cover of a neck of land, leaving on board Captain Bishop and Harker, who sailed up past them, when the natives left the camp, and, collecting on the beach, hailed those on board. By this time we had extended our files and surrounded them. On coming up to the wurlies Mr. H——, Captain Hawson, Old Garlie, along with myself and my two Adelaide natives, leaped into the camp and secured two old men and two young women. We then got on board the cutter, taking the two women and my prisoner, for the other had slipped through Hugonin's hands and escaped. After a most miserable and stormy night the wind right ahead, we anchored in the morning, and now took up our quarters in Port Lincoln, where I stopped with Mr. and Mrs. Swaffer.

One night we were aroused by the report of firearms. Some thought the natives had attacked the town, and that the soldiers were firing on them, but on turning out we found that it was a vessel that had arrived from Adelaide with a party under Mr. C. C. Dutton for the purpose of collecting all the cattle and driving them overland to Adelaide. Amongst them was an old friend of mine, Sandy McDonald, formerly overseer to Mr. E. B. Gleeson, and lately in the foot police in Adelaide.

A few mornings after this we were surprised to see the three soldiers we left in charge of the stores at Pillawarta, one without his boots, the other two bare-headed, having been attacked by the natives, when they ran for it like good soldiers!

We immediately prepared for a start, and the soldiers were to follow after with Mr. Dutton's party. When we got to the station we found it was plundered of everything. We got on their tracks easily, as some of the plunder being sacks of wheat, the wheat had run out as they went along, thus giving us a sure trail. As we got out on the Downs we saw two

natives running, to whom we gave chase. After a smart gallop we came up to them. They were two boys, who gave us some trouble to catch, as they fought like cats with both teeth and nails. They pointed in the direction of the camp, and we made for it, but having to cross a small shallow lake our horses made such splashing that the natives heard it and fled. We saw three of them return for their spears. Those we gave chase to, and Mr. Hugonin got hold of one. We then left him and went to join the remainder of the party, who were at the native camp collecting things belonging to the different parties who were murdered. We found this camp well stocked with the plunder taken from Pillawarta, consisting of bags of wheat, tea, sugar, and many other things; and also a clothes bag marked with the murdered Mrs. Stubbs' name, and put into it several things which were identified as belonging to the different parties who were murdered, some of the things being marked with their names. Those things being found in the camp of Mr. Hugonin's prisoner proved that he was connected with the murderers.

We then started with our prisoner and arrived at Pillawarta tired and hungry after a ride of forty miles. The soldiers had arrived, and had a good feed ready for us, and Mr. Dutton's intended overland party were there also.

After a night's rest and an early breakfast of cold pork and damper, with a pannikin of good tea, the mounted party and soldiers started for Port Lincoln, leaving Mr. Dutton's overland party to collect the cattle.

Mr. Hugonin and I rode out to Pillawarta to see the party before they started. It was a sorry equipment for such a journey—only one horse, team of six bullocks, some tea and sugar, no flour, only wheat and a hand mill to grind it, and so on.

Next day Mr. H—— and three soldiers, I, and my blacks sailed from Port Lincoln and arrived in Adelaide on the third day. . . .

After some time had elapsed the friends of Mr. Dutton's party that had started overland began to get uneasy, as there was nothing heard of them at the farthest out stations, and they being out now seven weeks, the case was laid before the Governor, and he gave orders for a party to start to look for them. The party selected was Inspector Tolmer (in charge), Corporal Rose, McMahon, Spencer, Brooks, Look, and Barber (driving the ration cart), and myself. There was also a party of volunteer gentlemen to join us at Bungaree Station. First day we got to Gawler Town, and Mr. Tolmer and Rose galloped

ahead of us to select a camping-place on the Gilbert, but there being no station or hut we formed a good shelter in a cave or crevice in the cliffs on the west banks of the river, where the remainder of the party arrived in good time.

Next morning the whole party started, all being under the command of Mr. Tolmer, and crossing the River Broughton, where the Crystal Brook comes out on the plains, we camped at the Brook for the night, and commenced our journey just up the plains west of the range.

Everything had been going on well until the day previous to our arrival at Depot Creek (Mount Arden), where the volunteer party began to show signs of dissatisfaction in having to obey the orders of Inspector Tolmer; and as he had been appointed by the Governor to take charge of the entire party he would not give in, and so after a regular growl it ended by his giving us orders to prepare for a return to Adelaide next morning.

In the morning, true to his word, we counter-marched, he leaving the volunteers behind us, and hastened on to town to report the circumstances, we following after him. When we got to Gawler orders then came for us to proceed no farther, as we were again to go back with a fresh leader, Edward John Eyre, the explorer.

Next day we were again joined by Mr. Tolmer and a fresh baggage and escort party. Mr. Eyre joined us with Mr. Burr, Deputy Surveyor-General. Mr. Eyre also said that he would take but three men along with his black, and when finally starting from Mount Arden he, therefore, selected Rose, McCulloch, and myself.

We left Gawler next morning, and after a quick journey of six days arrived at Depot Creek (Mount Arden). We had to go up the bed of this creek a long way, leading our horses over great boulders of rocks. The sides of this chasm were perpendicular, and nearly 400 ft. high; and we saw at the top several natives looking and shouting down at us. If they had only rolled the stones down they could have killed the whole lot of us, horses and all. It was now the month of September, 1842.

After a day spent in preparing, the next morning Mr. Eyre, his blackfellow "Nandora," Rose, McCulloch, and myself started, we leading three packhorses. (The remainder of the party, with Mr. Tolmer and Mr. Burr, proceeded to town.) The same afternoon we crossed between the head of Spencer's Gulf and Lake Torrens, where our horses sank to their girths in the stiff clay.

Next day the same miserable country, and the day after

arrived at Baxter's Range at noon. Mr. Eyre expected to find water here, but it was dried up. We found here an old tin bucket, which I recognised as seeing with Dutton's party, but there were no tracks to be found of either the horses or cattle. Then I came on a rock and discovered a crevice in it quite 10 ft. long and fully that depth, full of the finest rain water. This raised our spirits, and Mr. Eyre determined to rest here until the cool of the next afternoon, then start after giving the cattle plenty to drink, and travel all night, as he said there was no chance of water for seventy miles, at a place he called Refuge Rocks. He said also there was no fear of our horses going away, and that we need not watch them—a mistake that nearly caused the loss of the whole party, as next morning at daylight there was not a horse to be found. After a hasty breakfast McCulloch and Rose started on their tracks, and in about an hour Mr. Eyre followed after them, leaving his black and me at the camp. Night then came on, and there being no sign of men or horses, I took up my position on the high ground, lit a fire as a guide, and dozed off, but was woke by the arrival of Mr. Eyre, who told me that he had walked about twenty miles, and had seen one of the tracks, and followed this up a short way, when he found my horse, caught him, and put his swordbelt round his neck, and rode him back to camp. He rested until morning, and again started on the tracks with a little more confidence.

Two hours afterwards Rose and McCulloch made their appearance, knocked up and dejected, who said they walked nearly thirty miles the previous day, but no horses. They also told me that they had met Mr. Eyre that morning, and he told them as soon as they got to camp to start me and the black to follow him, and keep on his track, and not quit it until I either overtook him or met him returning, and that he would keep the same track coming back. I started with only my hat, trousers, shirt, and boots, my carbine and some cartridges, also a nosebag and a horn of tea, as the day was getting quite hot and not a breath of air.

After we passed where Rose and Mac's tracks turned back we began to get disheartened, so we resolved to return. It now commenced to thunder, the native said "Big one rain come," and advised me to return to a large wurley we had passed four or five miles back for shelter. We then commenced our return march, though disobeying orders; and it was well we did so, for had we gone on we would not have overtaken Mr. Eyre, nor met him returning, as he had got the horses, but found it impossible to keep them on their outward

track, so he had to follow them as best he could. Before we arrived at the wurley the rain commenced to pour down, and the thunder and lightning were awful. With some trouble we lit a small fire inside the wurley, but I never suffered with the cold as I did that night.

The morning came at last, and we continued on our homeward journey, two of the wettest and most miserable wretches possible, so I lay down and fell asleep. When I awoke I was much refreshed, as the heat of the sun put warmth into my body after the cold of the previous night. But a fresh misfortune now appeared. My native companion was nowhere to be seen, so I made another attempt to shorten the distance between me and the camp, and while looking wistfully at the place where my companions were I could see plainly a man on horseback leading another horse and coming to where I was. It was McCulloch riding his own horse and leading mine. Mac told me that the native had just arrived at the camp, and told them that he left me while I was asleep, and that Mr. Eyre had arrived at the camp only a short time before the native. He had overtaken the horses on the seabeach, west of Point Lowly, where one of them (Camel) took to the sea and swam for the opposite shore (Yorke's Peninsula), steering a direct course for Adelaide. He watched him till he was out of sight, and then faced the others towards the camp, but had much trouble to keep them together, and travel all the night, so he had his share of the rough weather.

Mr. Eyre had come across Dutton's party's tracks with the dray and cattle, but they were facing back in the direction of Port Lincoln again, so we concluded that they were all safe back at the place they had left.

Next morning we made an early start, and then gave the horses as much water as they could drink, Mr. Eyre saying we were sure of water twenty miles farther. After this we got to Refuge Rocks, but were sadly disappointed at not finding any water, as the horses were getting quite done up for the want of food and water, and from the great heat.

Started again at daylight, but in better hopes, as we could see the hilly country, and knew we had a better chance there of water and feed.

Nandra then called our attention to a wild dog on the top of one of the hills. As we looked in the direction we saw also a black make his appearance, who commenced running down to us, shouting all the time. Mr. Eyre called to us to get to our horses and mount quickly, as we were going to be attacked. When we got over the hill we saw about thirty

blacks running towards us with their spears raised, and all in fighting attitude, but we were fully prepared to meet them and fight for the water. The one who came to us appeared to be a chief; waving his hand above his head and calling to them, they all halted, laid down their spears and squatted on the ground. Mr. Eyre then told them our wants, and they ran in the direction of a pine creek, where we saw a number of lubras and children and a splendid waterhole. Mr. Eyre told two of us to remain mounted ready and the other to water the horses and light a fire. We kept a close watch over the natives, and they needed it, as they soon commenced to show signs that they meant mischief. He then ordered two of us to fire over their heads, when they scampered off to the other side of the creek, leaving us to ourselves. We then filled our water bags, had our tea, but kept a close watch on our horses all night. We allowed only the black we first saw to come across that night, and so had very little sleep; made an early start in the morning, and the old black came with us. Mr. Eyre said he would take him to Port Lincoln, and show the people there that if the natives were kindly treated they would not commit the depredations they did. I told Mr. Eyre that I believed this to be one of the murderers, and that I thought he would not persuade him to accompany the party to Port Lincoln. However, he kept on running along all day quite merrily, and brought us to a hole on the side of a hill, and went down into it, and in a short time returned with a large shell full of the purest water.

Next morning we watered the horses in the same manner, the old black still keeping with us.

When we were about an hour on our march, we came across Dutton's track. My horse was now showing signs of knocking up, and about noon he completely gave in. It was no wonder, he having done four hundred miles more than any of the others; besides, it was he who carried Mr. Eyre after the others when they strayed away; and it was he that brought me back when I was left in the scrub by Nandora, and my weight, including saddle and kit, was over eighteen stone. So Mac, with Mr. Eyre's permission, had a good rest for a time, while the latter and the others went ahead. After giving them about two hours start on us we set off after them, Mac going ahead on the track and driving the two horses after him, they keeping well up when we came in sight of the others, and after shifting our saddles to our own horses again we made for the camp. Mr. Eyre told us he would take the two best packhorses for himself and his blackfellow, and hurry on to Port Lincoln, leaving us

to follow after him leisurely, and that he would send out a party to meet us with some provisions, as ours were nearly done.

Mac and I and Rose started early next morning, and camped at noon in the centre of the scrub, with splendid grass, fine sheaoak trees, and a fine waterhole. Another early start, when we also got a sight of the sea; but coming in the direction we had I could hardly recognise at first sight where we were, but as soon as I saw South Island I said we must be very close to Pillawarta. And so it was; but it had quite a different appearance to when I saw it last, as there were a number of houses. We found the remains of a fire in the garden, and had a feed of turnips and some damper, and halted for the night. We could see there were no cattle here, though this was the place where Dutton took his mob from; but the stockyard, being grown over with wheat, showed plainly that they did not return there.

In the morning we tied our two packhorses together, and started them before us on the track for Port Lincoln, we following them at a quick pace, and arrived at Port Lincoln at midday.

We got two days' rest to repair our saddles, and on the third day we took to the scrub again in the direction of Franklin Harbor. The party consisted of Major O'Halloran (in charge), Inspector Tolmer, Sergeant McEllister, Corporals Swaffer and Rose, Constables McCulloch, Lamb, Geharty, and myself, with Farrier B. Clark; there were also Mr. Driver, J.P., and Mr. Charles Lloyd Hawker. We stopped at Pillawarta that night. Next day about 11 o'clock we saw a large number of natives all over the plains. We gave chase and cut them off, and before many of them got into the scrub we rounded them up and made them lay down their spears; but we were some time before we could get the Port Lincoln police to point out any of the suspected murderers, as they were quite paralysed with fear; in fact, they always appeared so whenever we came in contact with them. After some time they pointed out two, whom McCulloch, Lamb, and I immediately secured. Then the cowards felt themselves safe, and commenced to talk. One said, "Did you see the black that killed Mr. Brown?" Another said "Was it not a pity that the fellow that killed Fastings was not taken?" And soon we learned that we had allowed to escape some of the principal murderers, as we Adelaide men did not know them, and the Port Lincoln fellows were too frightened to point them out. When the Major heard this he gave orders to give chase as

quickly as possible, so we started at racing speed, and after going through the scrub for about a mile we came out on the sea beach, where we had first-rate galloping ground. We intended to keep on the beach until we knew we would be ahead of them, then turn through the scrub and round them up. From this place we got into the scrub again and faced back, extending our files fifty yards apart, covering a large extent of the country, but no natives were to be seen, so we kept on until we met the rear party. The Major's horse was quite done up, though he was considered the best horse we had. We then halted for a short time, and returned to Pillawarta, and remained there for the night, and proceeded to Port Lincoln the next day.

We made several excursions into the country, but saw nothing more of the natives. One day we were out looking at the soldiers who were fishing. McCulloch called my attention to a noise up at the Barracks. We both ran up; and not a minute too soon, for in coming to the end of the station house we saw our two prisoners going along the garden fence and making for the bush. We very soon caught them and dragged them back, and tumbled them, irons and all, down into the cell again. How they managed to come up the steps with their leg irons locked on to a bar 7 ft. long, I cannot say, for it would puzzle white men to perform such a task. They made another attempt that night. By some means they had procured a piece of a broken shears, and with this made an opening round the stone sill of the window where the iron bars were inserted. On hearing them we went down and found the stone quite loose. This made us keep a strict watch over them until we could deliver them into more safe keeping in the Adelaide Gaol, as the vessel had now arrived to bring us to Adelaide.

Soon after this, Major O'Halloran left, and was succeeded by B. T. Finniss, Esq., as Commissioner and Police Magistrate.

Our first duty in company with the new Commissioner was to go to Kangaroo Island to suppress smuggling that was carried on there to a great extent by some old Sydney and Van Dieman's Land hands, who then resided on the island. There were ten of us told off for this duty, and the Victoria schooner, with Pilots John and Benjamin Germein and a pilot boat's crew got ready to convey us from Port Adelaide, where a boat came off from the schooner and took us on board; we then steered for the island, but did not land till after dark next night when the settlers were all in their beds. We took up our position on a hill in Kingscote in the rear of Charley Thompson's house, he being the principal smuggler. While

lying in wait until daylight, before making a descent on his house, we kept as quiet as possible, only that Eastwood, who was a great snorer, would give a snort, when he got a poke in the ribs to keep him awake. The Commissioner here told us that he who laid hold first on Thompson should get five pounds. When we had sufficient light we surrounded the house, and, the back door not being secured, we got in there and spread through the house. We then found our way into Thompson's own room, where we found a woman sitting up in bed, and a man's clothes on a chair. Mr. Finniss asked her where Thompson was. She said at Flour-Cask Bay Fishery. He then asked, "Whose clothes are those?" She said "her son's," but we knew well Thompson was in the house. After examining the passage, Eastwood called out: "Here is a trap door," and, putting his finger into a ring-bolt, lifted it up, showing the steps down to a capacious cellar. I then commenced to descend, but had not gone more than a step when I saw a man at the foot of the steps with nothing on but his shirt. He spoke, saying: "You need not come down, I will go up." I backed up, he coming after me, and I forgot all about Mr. Finniss' five pounds until Sergeant Naughten, who always had his mind collected, put his hand across me, and, laying it on the man, said: "Thompson, you are my prisoner."

The sergeant got the five pounds, but gave it for the benefit of the entire party. Leaving a guard over the prisoner, the remainder of us went to search the out premises, where we found a quantity of tobacco, but no spirits; but we seized five splendid new whale-boats. We then got the prisoner, tobacco, and boats secured on board the schooner, and stood off as if we were steering for Port Adelaide, but returned when dark and landed at the American River, leaving only a guard of two men on board. From there we commenced to walk across an arm of land to Hog Bay until we saw the settlement, but those we wanted were too sharp for us, and made their escape before we got up to the houses, as we saw them running on the beach a long way off. It was useless to attempt to follow them.

After remaining here for about three hours, our schooner arrived, so we got on board and steered for Port Adelaide, where we landed safely and conveyed the prisoner to town, leaving boats and tobacco with the Customs authorities at the Port. Thompson was afterwards tried, and forfeited his boats and tobacco. Some time after our arrival a report reached Adelaide that Captain Sturt and his whole party were murdered by the natives on the Darling. Mr. Gordon then

came for Dawson and me to go on with him and his party to Moorundie to join the head-quarters party, who were already on their march for the Murray to follow up Captain Sturt's track. We started next morning, and halted at Bill Jones', the farriers at Penwortham, and on the day after halted at Julia Creek for dinner, and again resumed our journey.

The next morning we faced the Murray scrub and got through to Moorundie by noon. His Excellency Governor Grey, Mr. Tolmer, and a strong muster of our fellows were there, and were waiting for the return of a party sent up the river to learn more particulars before making a final start. After waiting three days longer the party returned, as they had met the natives with Captain Sturt's letters. The captain and his party were, therefore, all right, so we all started back for town, but Dawson and I went direct to our station at Bungaree.

I was next sent to Moorundie to relieve John Carter, where I was under the orders of William Nation, Esq., S.M. I had to take charge of the natives' stores, and also to act as clerk to the church, as Mr. Nation read the Church of England service every Sunday. The duties to be performed at this station were more like pleasure than anything else. The floods came down this season, and the oldest of the natives never saw such rains before. The flats in the rear of the police and soldiers' barracks had fifteen feet of water over them, and but for the house being built on a sort of natural rampart which ran along the bank of the river, we should have been all swamped out.

The natives would never be a day behind the full moon when they came down the river for rations, some travelling even a hundred miles, and would be knocking at my window and calling, "McLean, what for you no get up and gib it flour." When the flour was issued it was amusing to see the shifts they had to make for something to receive it in. Some had a leg of trousers, and others a piece of bark. Immediately after the issue, when counting the tally, we would find that several must have got supplied more than once, as the women lent their children to each other, and so got a double lot.

Immediately the issue was over each family went by themselves and lit their fire and commenced damper-making on a large scale. They carried water from the river in many ways, mostly in pieces of bark, and sometimes in their mouths.

After this came the eating, which they stuck to until they went to sleep. They had always plenty of fish. There was one sort for the children, another sort for the young men; then the young women, and after this came the women with

husbands. Each was proscribed from eating anything but what was allowed them by their lords and masters. The old men were privileged to eat all sorts, thus ensuring themselves, no matter which class went without.

I was one day engaged in writing my weekly journal when I heard some of the soldiers, who were fishing in front of the barracks, call out that a snake was swimming across the river. I immediately commenced to load my carbine with shot and ran out, and there saw him coming straight towards me. I fired and hit him, for he sank at once. They opened him and found five young snakes about six inches long each. The natives said he swallowed them for the purpose of taking them over the river, and that such a thing was quite common. They very soon had him on the fire, cooked and ate him together with the young ones.

The old women are the most expert divers. I often, when fishing off the bank, got my hook fast in a log in the bed of the river. I would then call an old woman, holding my rod to show her where the line was sunk. She would then swim to the place, dive down, and return in a short time with the hook between her fingers. I have frequently employed the women to catch large crayfish or lobsters, which they could get in the bed of the river amongst the reeds alongside the banks in ten or fifteen feet of water. I have often watched them go down, and it was surprising the length of time they would stop under water. I could always see the spot they were in by the shaking of the long reeds as they walked through them, but they never came up without having one or two of these fish with them. They would keep at this for hours, and be quite satisfied with a pannican of flour for payment.

There were but few stations about there. The first was Jaffrays and Macbeans, next was Mr. Williams, then Mr. Wyleys, and that of Mr. J. C. Hawker, who lived at Moorundie. Mr. Hawker had a large mob of pigs running wild on the flats. They subsisted on the roots of the reeds and flags.

The Murray was a favorite resort for a lot of young men who had spent what money they took out with them while living in Adelaide, and, while waiting for further remittances from home, they would retire to the banks of the Murray and camp there. This was a wise precaution against the temptation of getting in debt in Adelaide, as there was fishing, fowling, wild geese, black swan, and several sorts of ducks abounding on the creeks and lagoons; also plenty of kangaroo and emu on the high ground adjoining the scrub. I often thought it the happiest life a single man could live. Any person having an income

of less than fifty pounds a year could live the life of a prince. He had no occasion to do anything he did not like, as he could get natives to do this work.

One day I saw Henry and Bob, two of the natives who accompanied me on the Port Lincoln expedition; they brought a letter which informed me that Mr. Tennant and Mr. Anderson had arrived in the Port Lincoln country with sheep from Adelaide, and that they came on Dutton's dray, and underneath were the bodies of the whole of that unfortunate party; but it was impossible to tell how they came by their death. The place where the dray was found was but a short distance from where Messrs. Eyre, Rose, McCulloch, and I quitted the track. Had Mr. Eyre followed it up we should have known more of their fate, though they must have been dead then. So ended the days of my old friend, big Sandy McDonald.

About twelve o'clock one night we were turned out of our beds by Mr. Tolmer, accompanied by Mr. Montefiore. Mr. Tolmer said there was a ship ashore on the seabeach opposite the Coorong, and he wanted to send a party immediately. He selected Donald Stewart, G. Dains, J. Lamb, and me, and sent for Sergeant-Major Alford in a hurry, stating there was no time to spare, as the crew and passengers were in danger of being murdered by the natives. We started at seven o'clock next morning, and were to call at Encounter Bay for Corporal Pollard, who was stationed there. Sergeant M. Alford was also instructed to employ two whale boats and their crews from the Fishery, which were to be conveyed by bullock teams to the Goolwa, then to sail up the eastern branch of the Murray to the nearest point to the wreck, and convey back the passengers, crew, and cargo to the Goolwa. We hastened on our journey to Goolwa, from which we crossed with our horses to Hindmarsh Island, where we camped for the night. Early in the morning we went up the bank of the eastern branch of the Murray and lost no time in mounting and getting over the sandhills and on to the seabeach. The tide being out, we went at racing speed. After an hour's ride we got sight of the vessel high and dry up against the sandhills full twenty yards from the sea, but we saw no person moving about anywhere, neither was there any person to be seen when we got there. There were spars, sails, and cargo strewed about in all directions. We then came on a beaten track entering a gap in the sandhills, and, following this, came suddenly on the crew and passengers where they were encamped. A Roman Catholic clergyman, Rev. Watkins, was standing at the fire bare-headed, reading to the crew and passengers, who

were all paying the greatest attention. They were greatly afraid of the natives, who were collected in large numbers, and every day increasing. The principal part of the cargo was hops and dried mutton hams. The natives had broken open some of the cases and fitted themselves out in all sorts, both men and women—coats buttoned behind, and some with their arms shoved through the legs of trousers, but they very soon disappeared when they saw us. We were too hungry to bother about them, as we saw two large pots boiling mutton ham and potatoes that we stood in great need of, having eaten nothing since the previous day. The poor people were quite overjoyed at our arrival, particularly Father Watkins.

There was plenty of meat, besides potatoes, sugar, coffee, and flour. The passengers and crew were making a sort of flat-bottomed boat to enable them to cross to the main land, but they knocked off boat-building when we told them there were two whale-boats coming. These arrived the next day, and, after we got the crew and passengers with their luggage on board, along with what cargo they could take, the boats started for Goolwa, leaving Lamb, Dewins, and me to remain until all the cargo could be removed, which we expected to do in three trips.

The next morning, after giving the boats a start of us, we followed after them down the bank of the river, and passed them about half-way between the wreck and the mouth. When we arrived at the crossing place we halted for the boats, expecting them in an hour or so. Night came on and no boats, and then it commenced to pour with rain, and not a bush to shelter us. Daylight came, but still no boats, and raining hard. Next morning we were preparing to go back when we learned what caused the delay of the boats. The whalers were determined not to come on until we were off, as they had a quantity of things they had planted on their two first trips which they did not wish us to see. Next day we started for town, and arrived at barracks after five o'clock in the evening.

After this trip I was kept at town duty so long that I was getting tired of it, and when I applied to be sent to an out-station, the answer was "my horse, Savage, was not fit for bush work, and that I need not expect to be sent out until he was more manageable."

I was then sent to the Port for a month, thinking that, having to come up the Port-road so often, it would be a good way to make him familiar with the different objects he would meet on the road.

Soon after this Governor Robe arrived to relieve Governor

Grey, and I was called to town to join in the escort to see Governor Grey away. Our orders were to allow no person between us and the carriage but the Colonial Secretary. His Excellency took his seat in the carriage accompanied by Mrs. Grey and his private secretary (Mr. Godfrey Thomas). Immediately the carriage drove off we rode close after it, but the bustle in starting frightened "Savage," so that he jumped clean over a large holly bush, and then kept on one string of jumps until he was over Frome Bridge. One gentleman, Mr. Frederick Bayne, a lawyer, would come between us and the carriage, and though we spoke to him he repeated it. In passing through Hindmarsh, a Mr. Ridley fired a salute for His Excellency. At the first report Savage was so frightened that he leaped right over Mr. Bayne, sending both him and his horse rolling in the dust. I could not stop to see if he was hurt; but after a while I saw him amongst the crowd; he never came in front of us again. When we got to the Port we filed off right and left, fronting each other, leaving a clear passage to the boat steps, where the man-of-war's barge was lying ready manned to convey His Excellency to the vessel, which was to sail next day for New Zealand, that being Governor Grey's next seat of Government. After the barge had moved off amid the cheers of the sailors and crowds of people assembled, His Excellency Governor Robe took his place in the carriage, accompanied by Mr. Godfrey Thomas, and dashed off for town, followed by ourselves as his escort.

Some time after this I was not satisfied at my position. There was a station at Mount Gambier, and I expected to be one of the men selected to go there; but not one word was said about me. There was also a man promoted to the rank of corporal who was some years my junior, and who had never done any particular duty, so I made up my mind to leave. After telling Sergeant-Major Alford a little of my mind, I wrote out my resignation to leave on the 31st of the month.

Mr. Tolmer asked me that evening what were my reasons for leaving. I told him that I considered I did not get justice done me for all the special duty I performed; and that there were men favored who never did any duty, besides being my juniors. He advised me to change my mind, and gave me his word that he would see there was justice done me. I replied it was too late now, as I had taken the carpentering work of a new public house Alford was building in Pirie-street. He said he was sorry to lose me, but if I required his influence at any time I should have it. I thanked him and we parted. Next day, 31st January, 1846, I quitted the Mounted Police of South Australia.

FORM No. 1.

The Royal Geographical Society of Australasia.

SOUTH AUSTRALIAN BRANCH.

CERTIFICATE OF A CANDIDATE FOR ELECTION.

Name

Qualification or Occupation

Address

being desirous of admission into the South Australian Branch
of the ROYAL GEOGRAPHICAL SOCIETY OF AUSTRALASIA, we, the
undersigned members of the Society, propose and recommend
him as a proper person to become a member thereof.

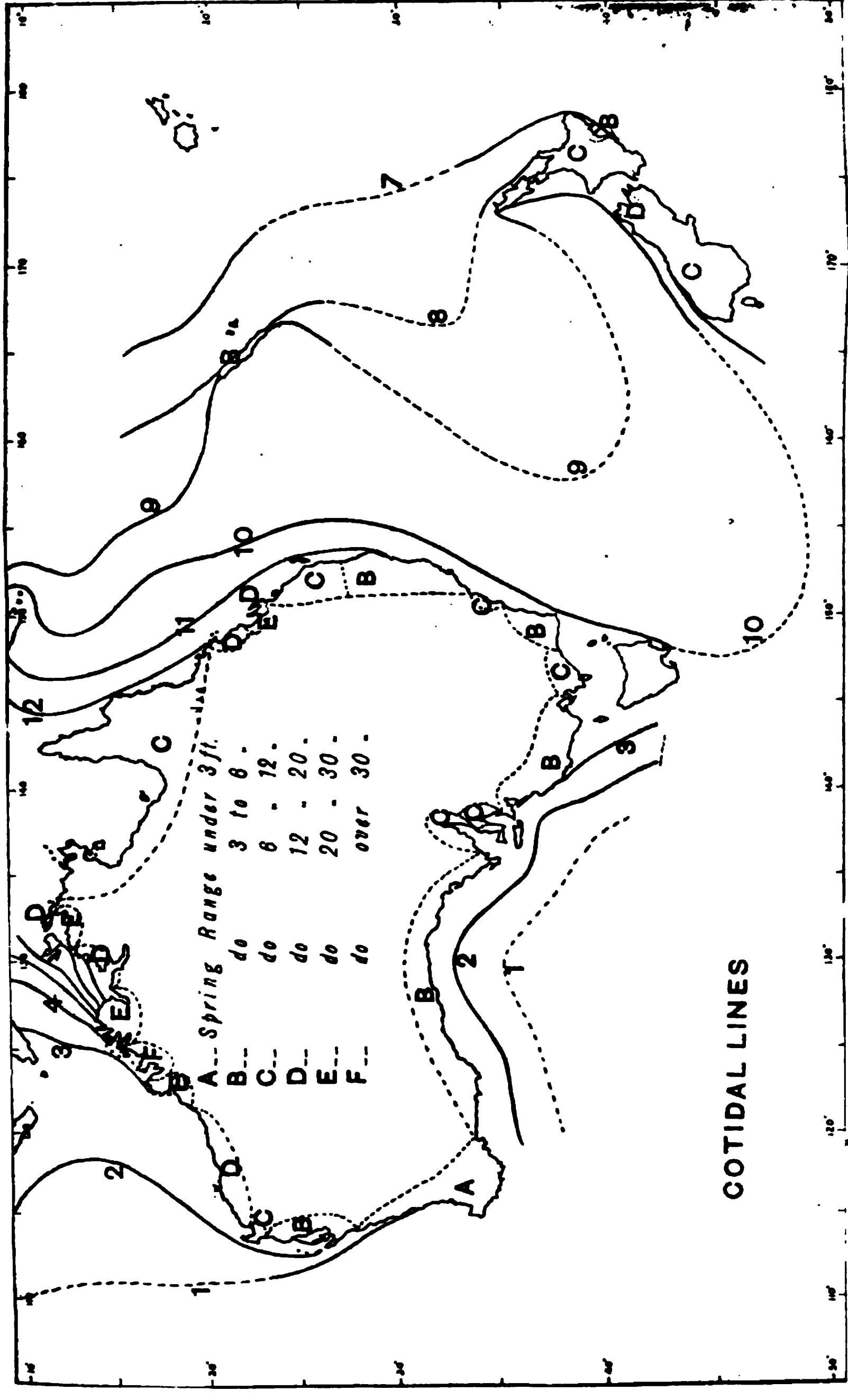
Dated this day of 190 .

Form of Legacy.

 : :

I HEREBY BEQUEATH to the ROYAL GEOGRAPHICAL
SOCIETY OF AUSTRALASIA (South Australian Branch), the sum of

.....
to be devoted to the objects of the Society; and the receipt of
the Honorary Treasurer of the said Society shall be a sufficient
discharge for same.



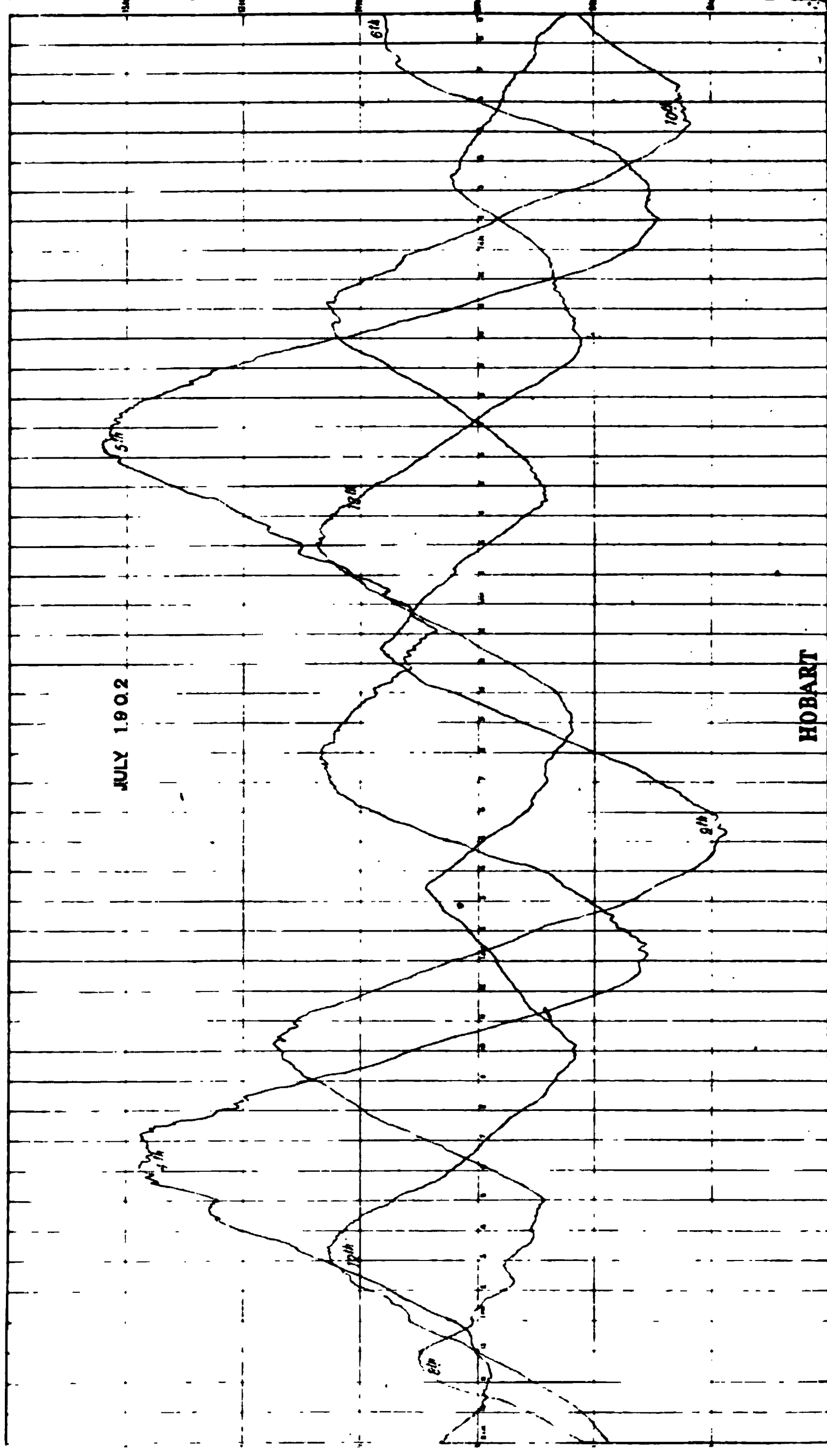
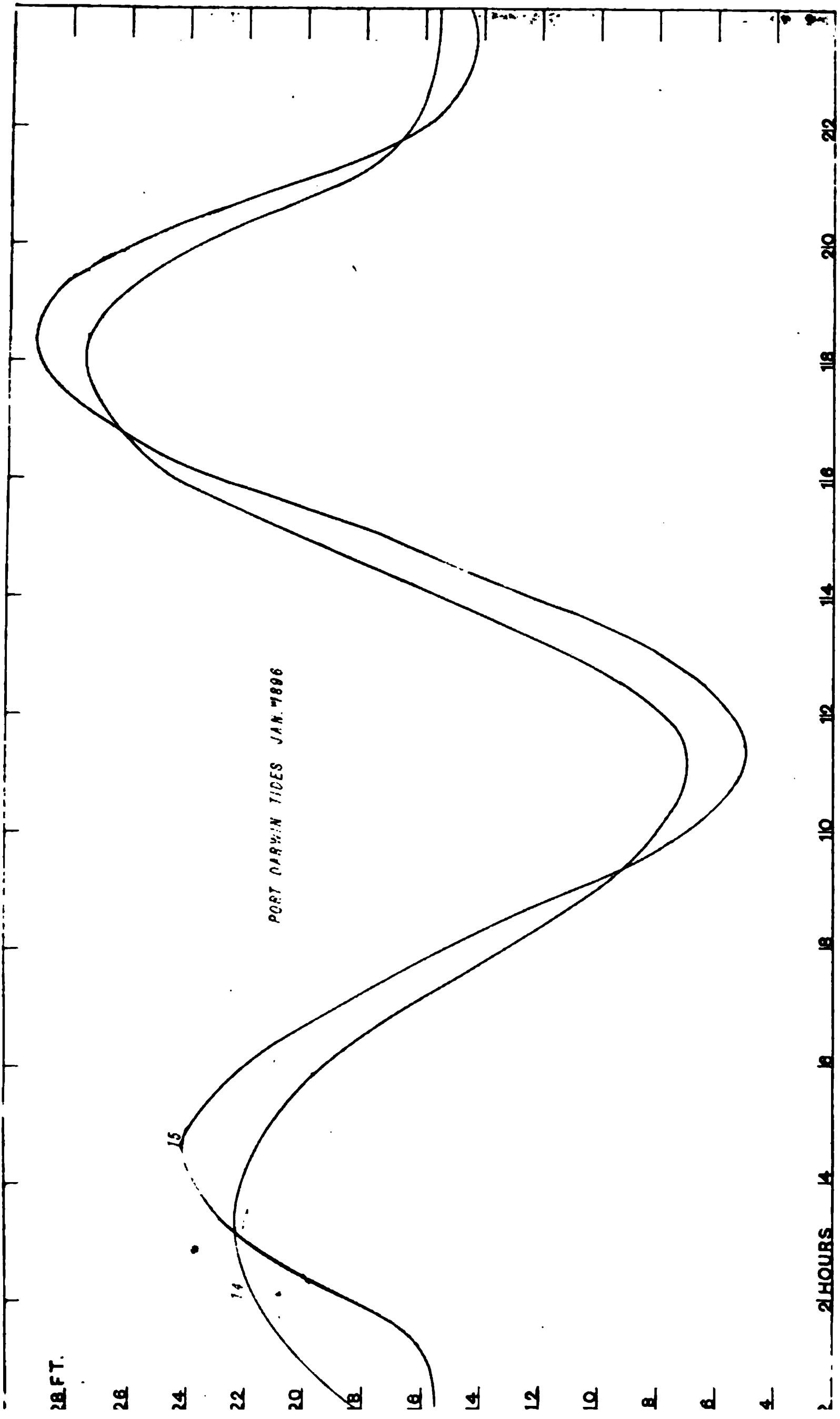


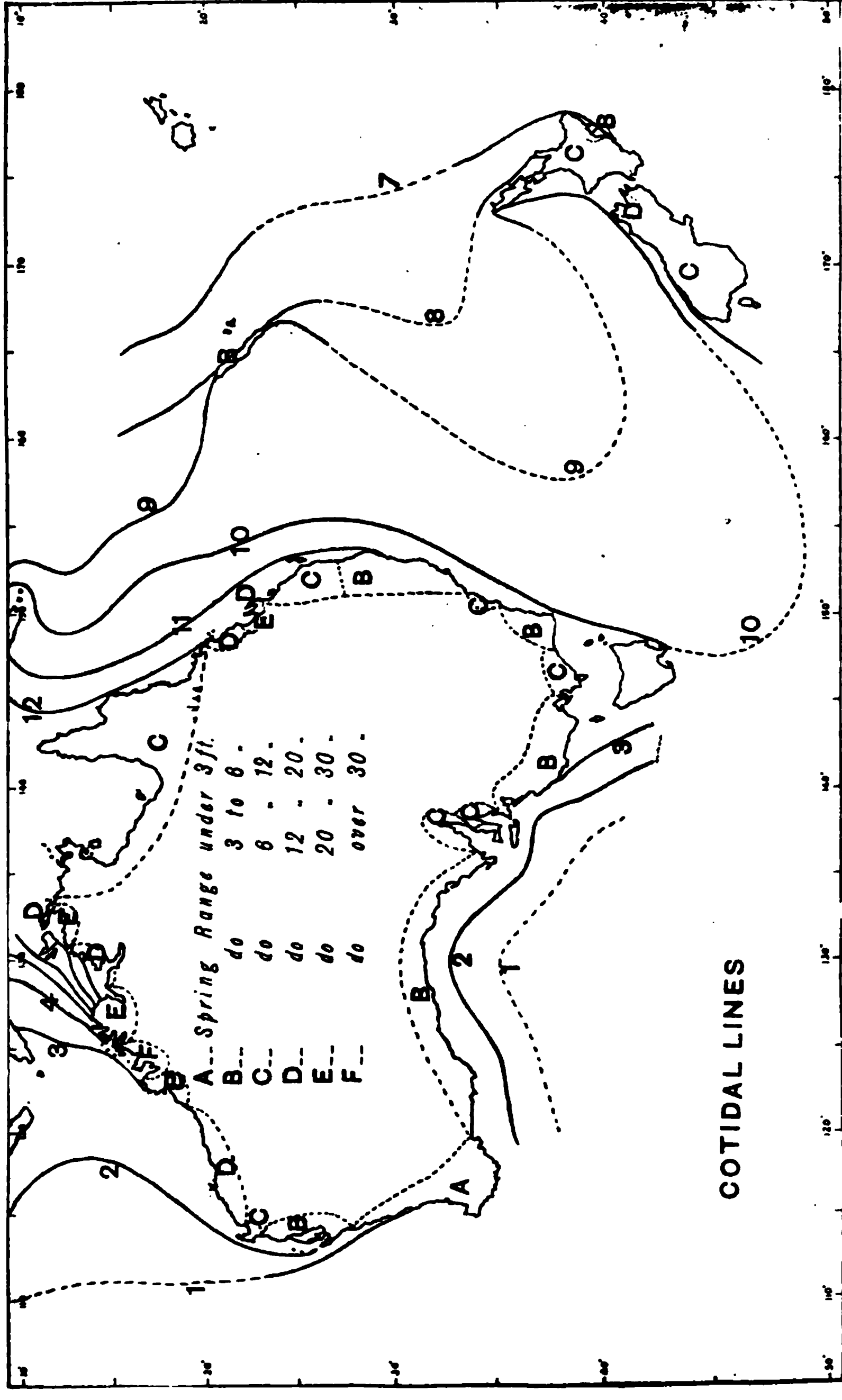
PLATE III.

F.H.W. TIDE GAUGE RECORDS, 1902.

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NOTE:—WEATHER READING TAKEN 9 A.M., 1 P.M., AND 4 P.M. EACH DAY.





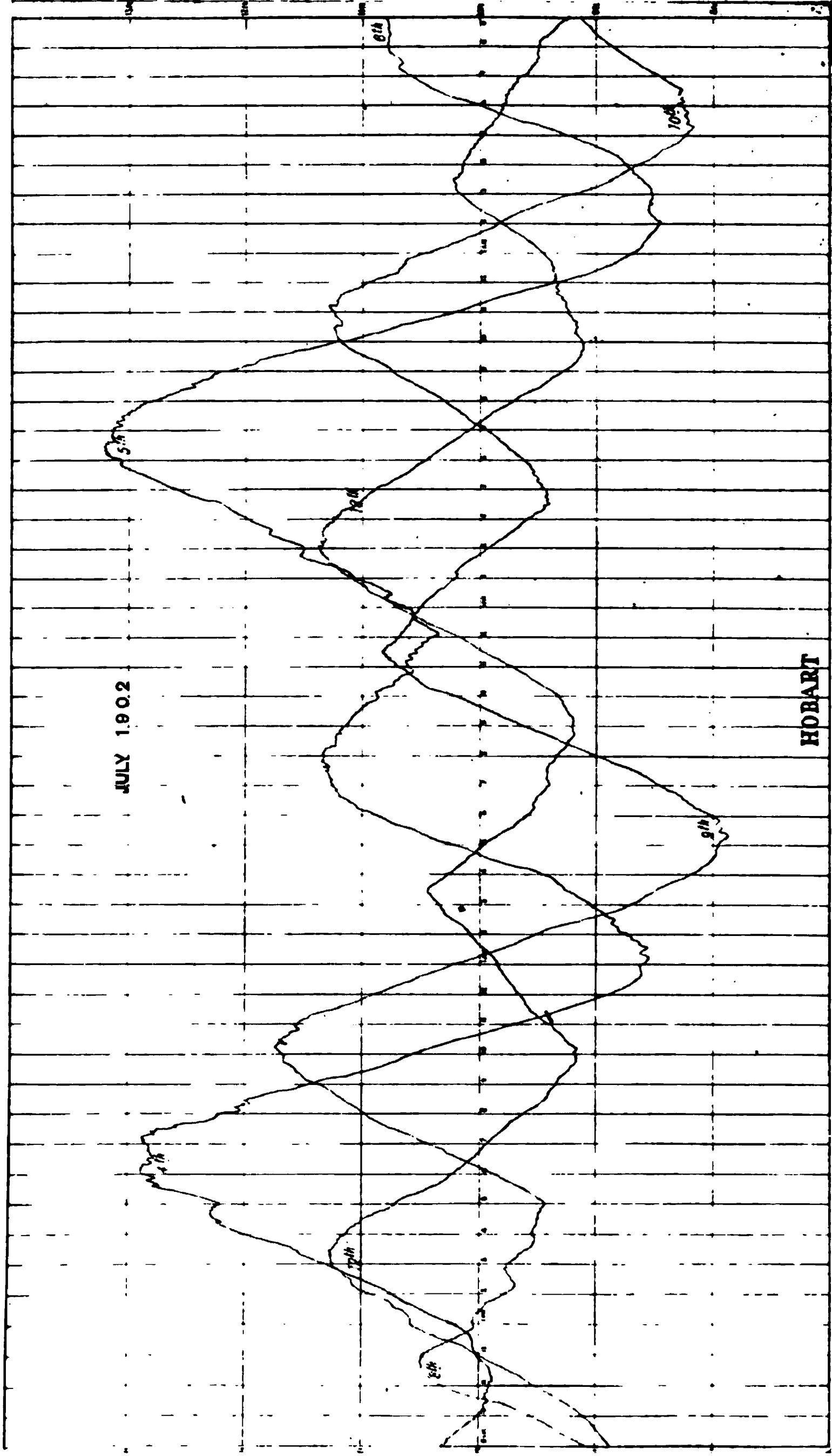


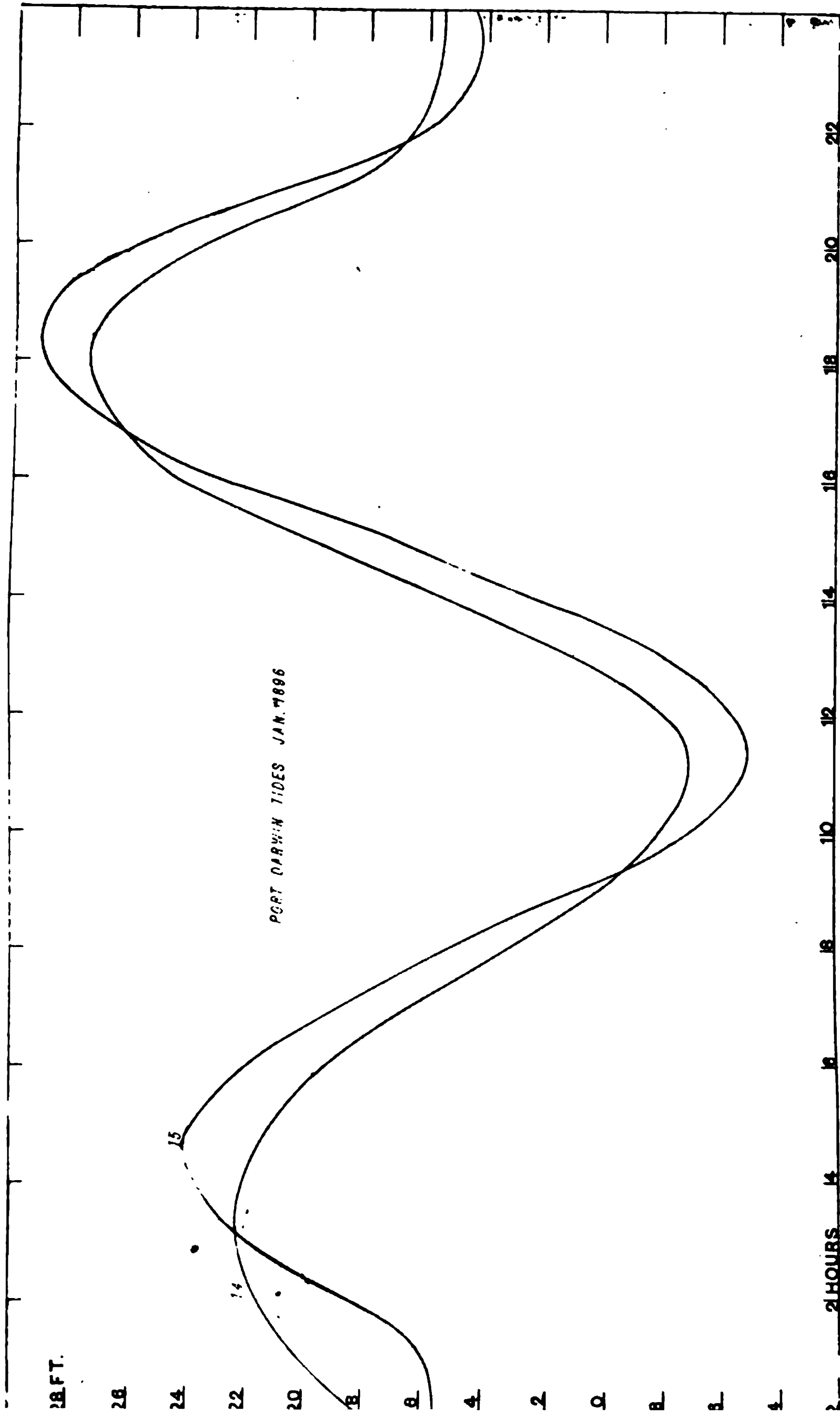
PLATE III.

F.H.W. TIDE GAUGE RECORDS, 1902.

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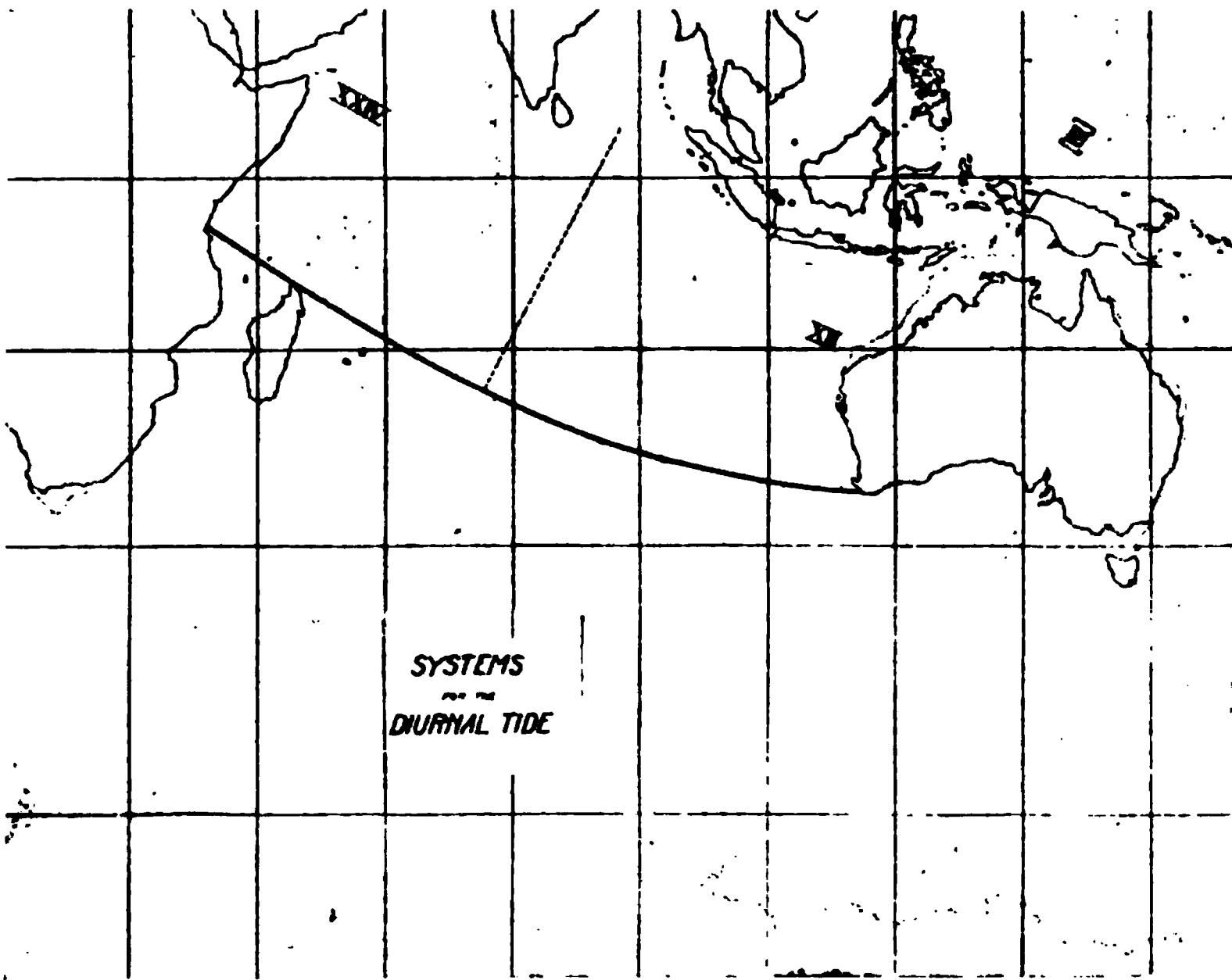
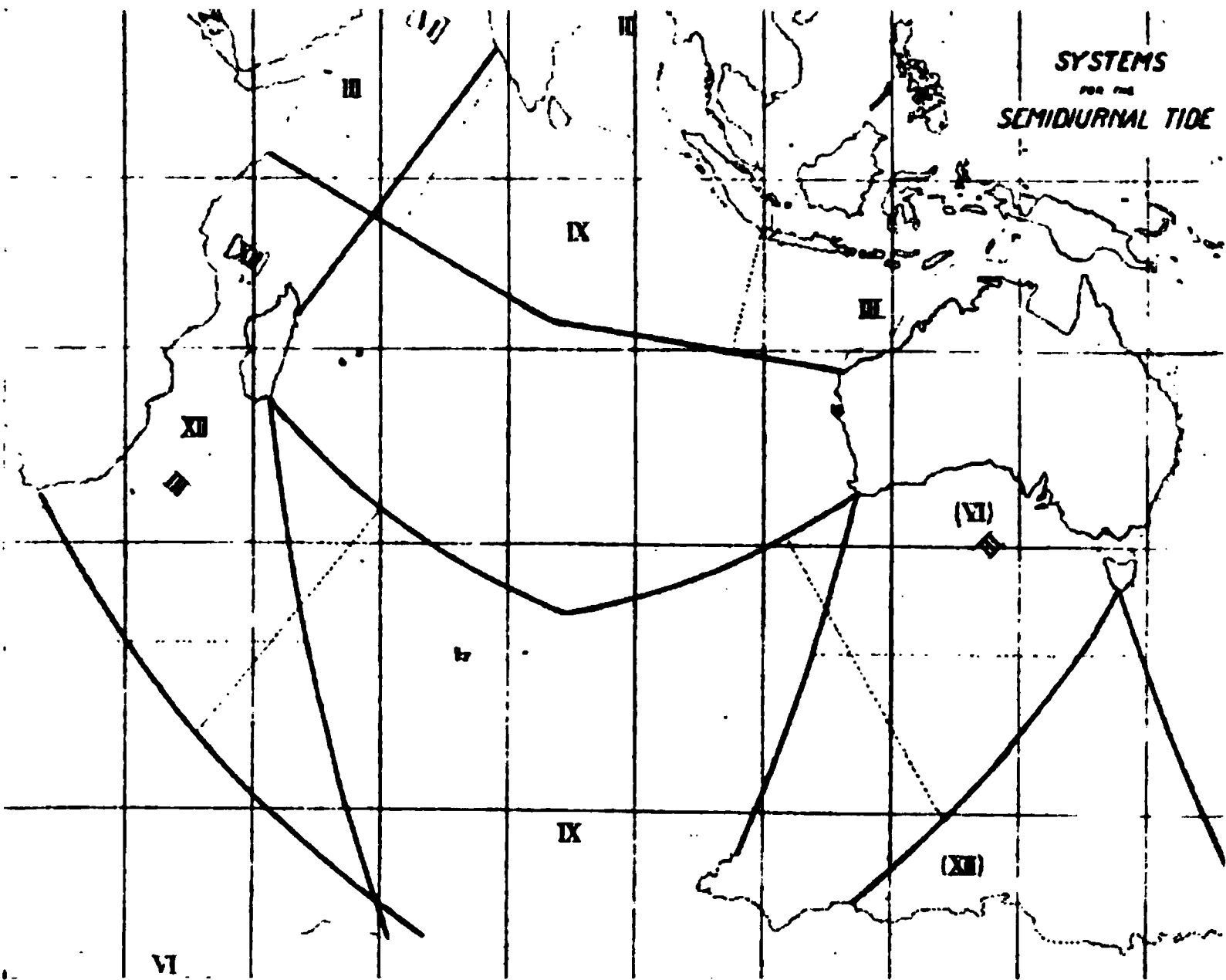
DEPTH OF WATER IN FEET

NOTE:—WEATHER READING TAKEN 9 A.M., 1 P.M., AND 4 P.M. EACH DAY.



PORT DARWIN TIDES JAN. 1896

PLATE V.







78,

BOUND

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